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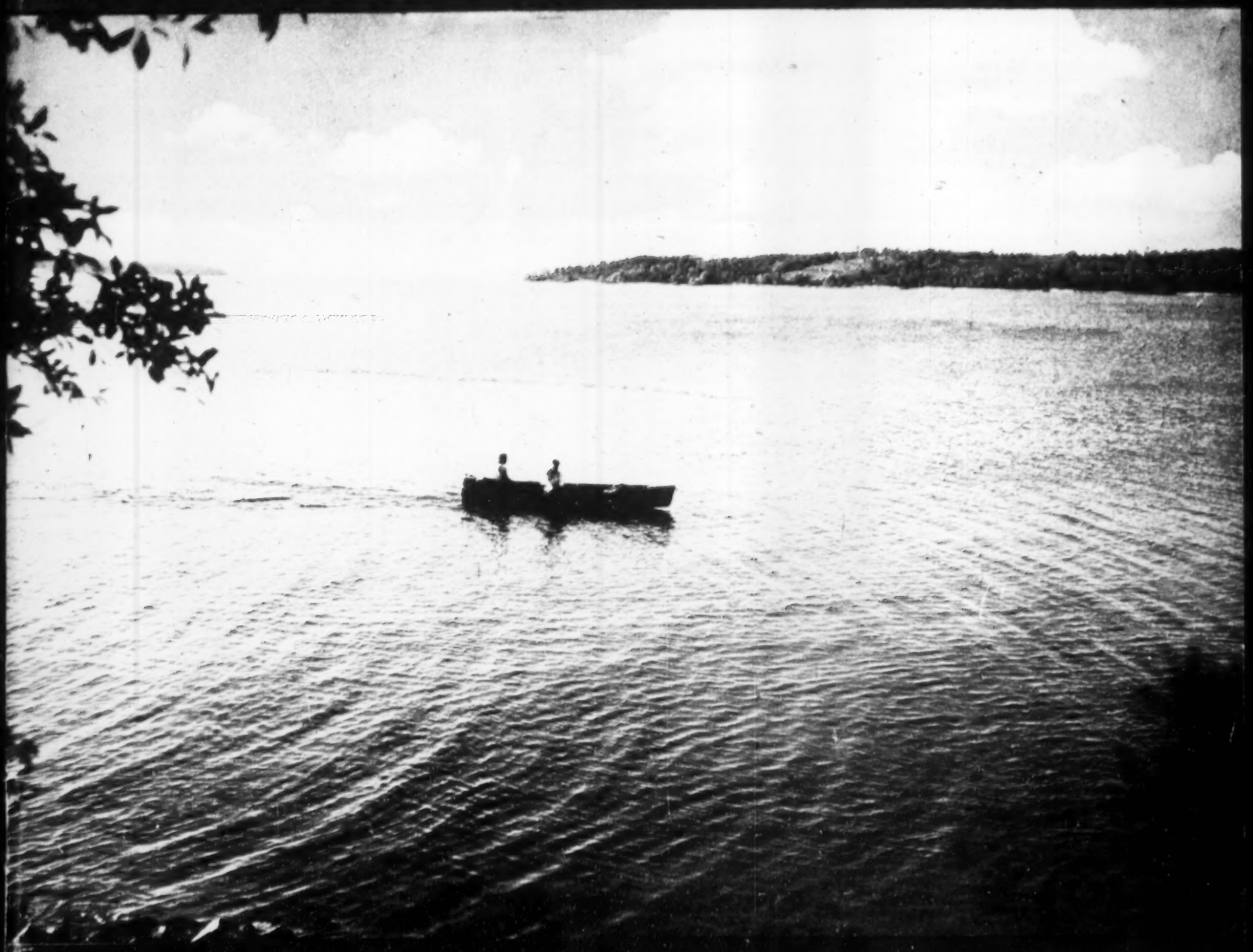

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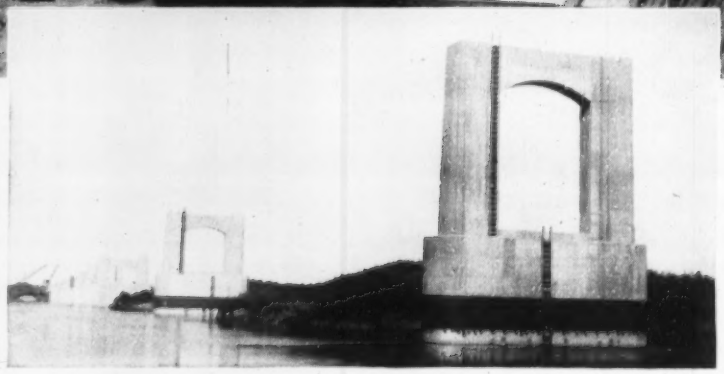
PROVED PERFORMANCE SUPPORTS THE SELECTION OF WROUGHT IRON FOR THESE PIER PROTECTION PLATES

New highway bridge spanning Illinois River at Beardstown, Illinois



First-hand experience plays an important part in the selection of materials for the various projects handled by the Board of Public Works, State of Illinois, at Springfield. Typical of this policy is the selection of wrought iron pier protection plates for the new highway bridge pictured above. Wrought iron has been used for this service by the State's Bridge Department for many years and has, in all installations, given satisfactory service with minimum maintenance. So it was only natural that when the plans called for pier protection plates on the new bridge, the order came through for "more of the same."

More than 40 tons of corrosion-resistant wrought iron plate, in sizes of 5/16-inch and 3/8-inch, was installed to protect the concrete bridge piers against damage from ice, debris, and boats. The pier construction was handled by the Great Lakes Dredge & Dock Company, Chicago. The wrought iron plates were fabricated by Bennett Industries, Inc., Peotone, Illinois.

The reasons for wrought iron's ability to withstand the service conditions in this application, and provide longer life, at lower cost per year, are discussed in detail in our bulletin, *Wrought Iron for Bridge Construction.*

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SUSPENSION BLOWPIPE JET PIERCING MACHINE burns its way through granites, taconites, quartzites, dolomites and similar rock at 20 to 30 feet per hour. Note hose following the burner right down the hole. Photos courtesy Linde Air Products Company.

Emerald Cord—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

THIS machine literally burns blast holes into solid rock at 15 to 20 times normal drilling speed. Its white hot flame—well over 3000° F.—creates great thermal stresses that crumble the rock into fine particles. Water, also used to cool the burner, is ejected into the hole, turns to steam and blows these particles to the surface.

Big problem for designers was getting the kerosene, oxygen and water down to the blowpipe. Hose was the only answer. But every one they tried failed in a day, or less, from the rugged combination of steam, fuel, oxygen and severe abrasion by sometimes red-hot rock particles.

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Publisher

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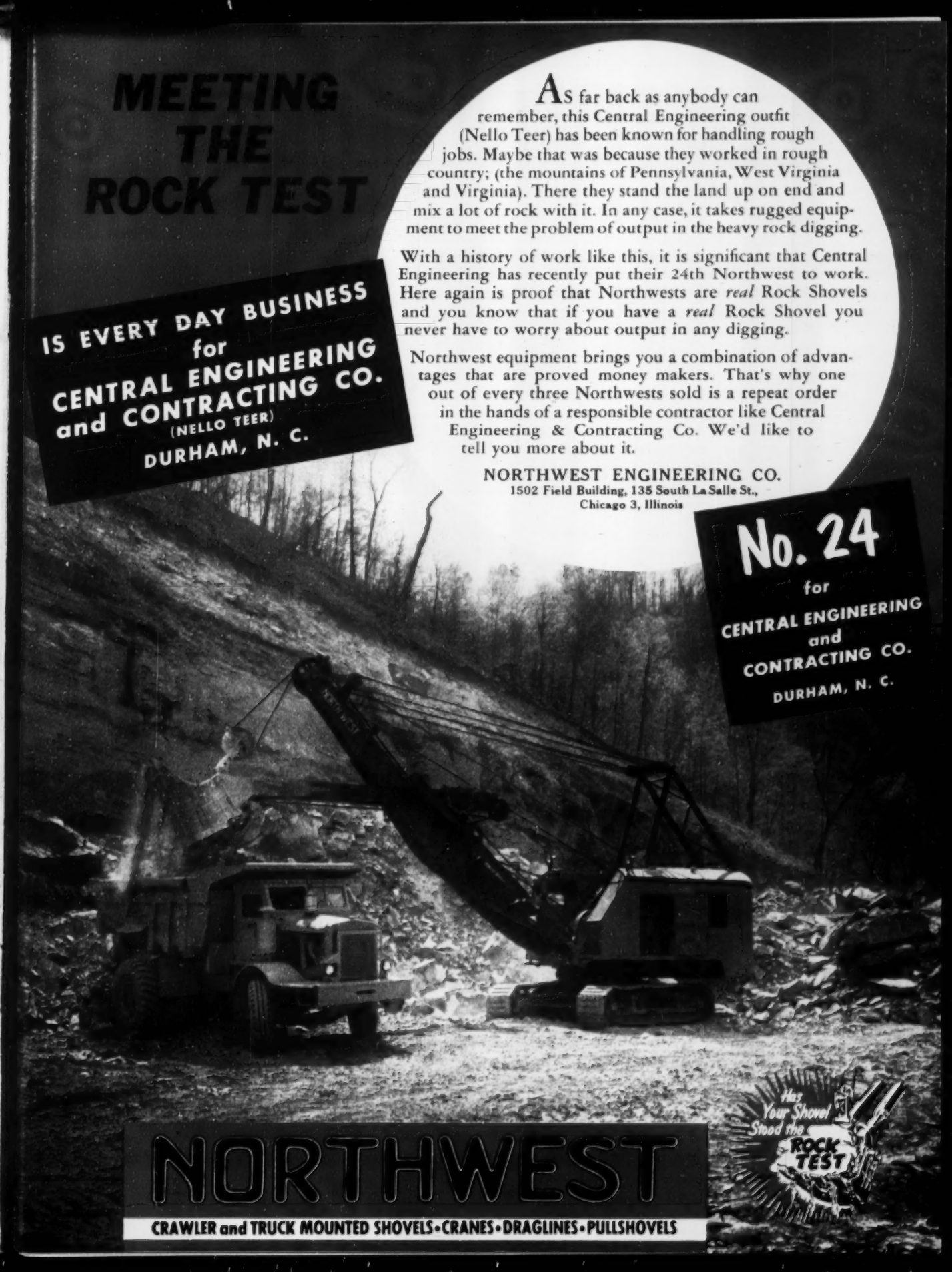

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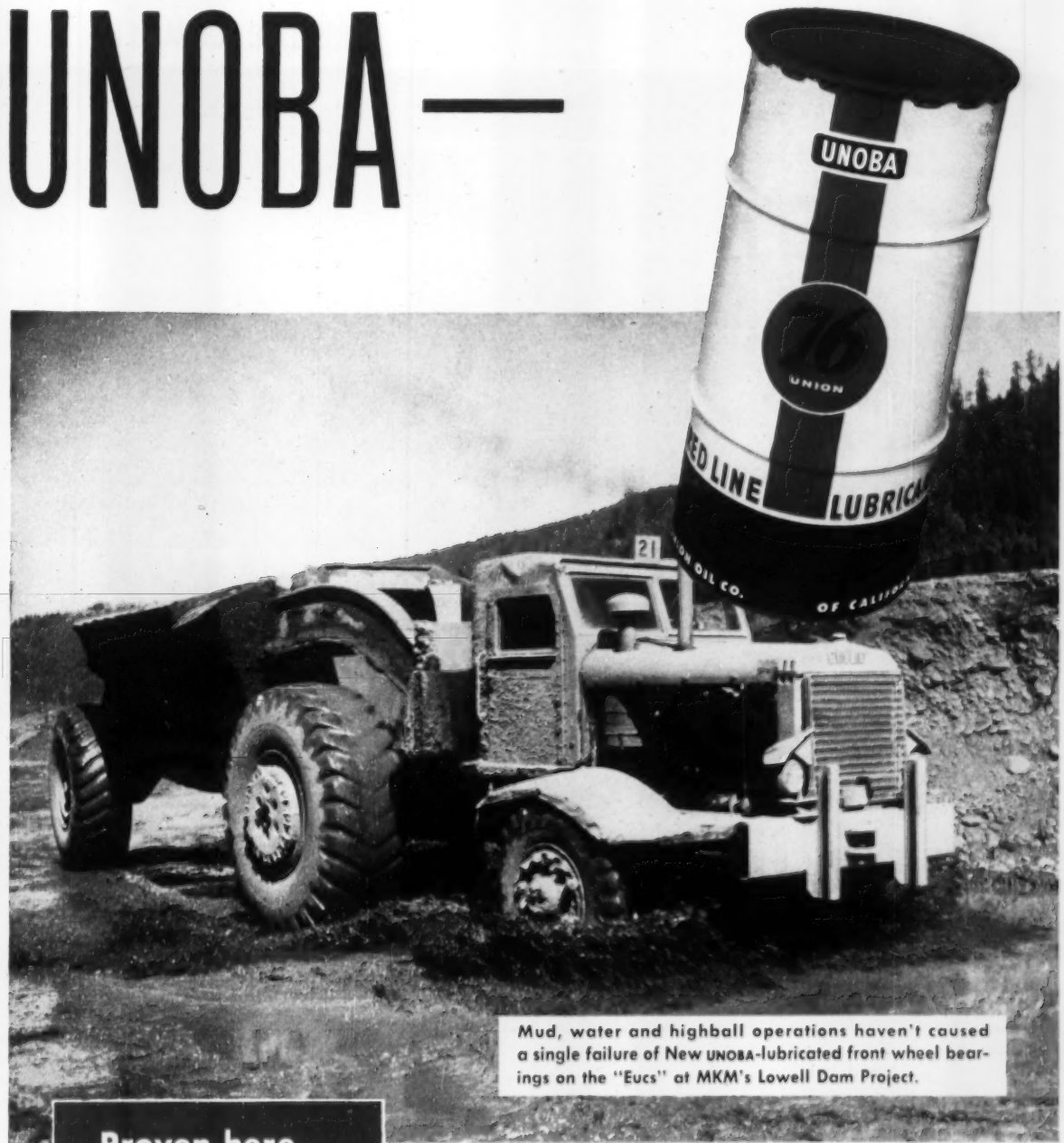

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ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS

Walls supported as interior steel frame is installed
200-year old brick very soft
Horizontal beams take thrust of exterior shoring

Project: Restoration of Yale University's Connecticut Hall

General contractor: Paterson Construction Co., Inc., New Haven, Conn.

Architect: Douglas Orr, New Haven, Conn.

Engineer: Henry Pfisterer, New Haven, Conn.

18th CENTURY FACE PRESERVED AS YALE BUILDING GETS NEW INTERIOR

Historic Connecticut Hall is the oldest structure on the Yale Campus. Standing since 1750, it had suffered dangerous deterioration of the internal timber construction, much like the White House, where similar work was performed by this company.

One of the similarities was the problem of the walls. After removal of interior timbers, walls would be free standing and would need lateral support. Photo shows inclined shores engaging vertical beams—these beams being connected by horizontal structural steel members within. Complete rigidity was thus attained. The softness of the centuries-old brick, the special chimney problems, are sidelights of this interesting restoration which may well set a precedent for salvaging other historical structures.

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Tampa bridge is low-cost

SIR: Congratulations on an excellent and informative article on prestressed-concrete methods and costs (ENR March 18, p. 38).

Your readers will be interested in a correction that should be made in an apparent error in costs of the Tampa Bay Bridge given in the table, "Summary of Bridge Superstructure Costs," on p. 46. The bridge is 17,422 ft long and 37 ft 4 in. wide, out-to-out of deck slab. Total area is about 650,000 sq ft. In the official bid tabulation, we find the following:

Item 75-C—Concrete bridge spans (includes precast-prestressed girders, poured-in-place decks, sidewalks and curbs)—17,422 ft at $114.50 per ft, totaling $1,994,819 and averaging $3.06 per sq ft.

Item 73-A—Precast handrails and poured-in-place posts—34,798 ft at $5 per ft, totaling $173,990 and averaging $0.28 per sq ft.

Item 75-C includes all work above the pile-bent caps, except the handrails, which are given separately. We do not know whether railing is included in the other bridge costs listed in the article.

Bids for the substructure totaled $1,150,887, or $1.77 per sq ft.

From this, it is readily seen that the Tampa Bay bridge (ENR Feb 26, 1953, p. 36), for which the prestressed design was prepared by the Preload Co., Inc., in collaboration with the owner's consulting engineers, Parsons, Brinckerhoff, Hall & Macdonald, is the lowest cost major prestressed concrete bridge yet placed under contract.

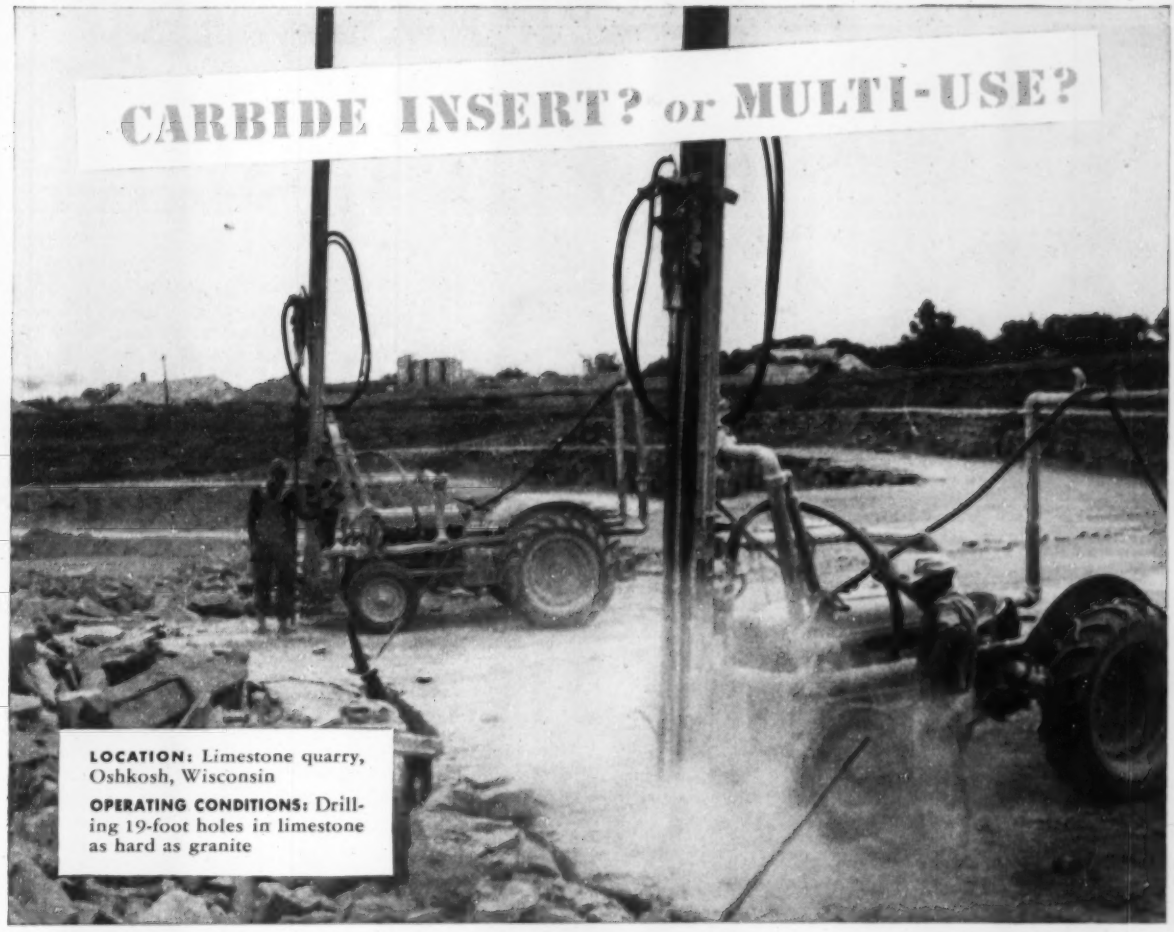
—J. J. CLOSNER
Vice-President
Preload Construction Corp.
New York, N. Y.

Steel or prestressed concrete

SIR: In the article, "Prestressed Roof Girders Set Span Record", (ENR Jan. 21, 1954) concerning the Senior High School gymnasium under construction in Greensboro, N. C., it is implied that a $10,000 lower bid on the concrete design than on the steel alternate was due to an advantage costwise of prestressed concrete girders over steel trusses. Actually, this was due to other factors involving the overall designs for the entire building.

For this structure, the only valid comparison that can be made between the cost of prestressed concrete and structural steel is for the prestressed

(*Continued on page 8*)


CARBIDE INSERT? or MULTI-USE?
LOCATION: Limestone quarry, Oshkosh, Wisconsin
OPERATING CONDITIONS: Drilling 19-foot holes in limestone as hard as granite

Lutz Company used clever rigs and TIMKEN® carbide insert bits to make two wagon drills do the work of three

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READER COMMENT

concrete girders vs. steel trusses separated from the cost of all other items. Fortunately such a comparison can be made from the bids to the general contractors by the prestressed concrete subcontractor and the steel subcontractor.

The bid of the prestressed concrete subcontractor for the seven prestressed concrete girders, precast concrete roof purlins and the prestressing cables for fourteen columns was $26,450. From this amount a deduction of approximately $5,000 must be made to arrive at the cost of the girders alone, namely $21,450. The steel subcontractor's price for seven steel trusses and bracing was $13,735. Both prices include erection. Thus the net saving in favor of steel is $7,715.

The higher bid on the so-called alternate steel design was due to factors involving the overall designs which more than offset the price advantage steel trusses had over prestressed concrete girders. A suspended plaster ceiling was required under steel roof purlins for the steel design but not under precast concrete purlins for the concrete design. Encasement with concrete and brick was specified for the two end steel trusses but not for the two end prestressed concrete girders. The steel alternate was not designed entirely in steel. First floor construction was exactly the same reinforced concrete and precast concrete joist construction specified for the concrete design. Precast concrete joists were required for the second floor. Also, in following the general outline and framing plan of the concrete design, economies inherent in steel design were lost.

This article mentions the fast erection time for the precast concrete girders, stating that the elapsed time per girder was nine days. The first girder was poured on May 9, 1953; the seventh and last girder was erected on Oct. 7, 1953. Allowing two weeks for building forms, setting reinforcing steel and prestressing cables and other preparations for pouring the first girder, the total elapsed time for the seven girders was 145 days and not 63 days as suggested in this article.

In further reference to the time element, the general contract for this structure was let on Feb. 5, 1953. The steel subcontractor agreed to furnish and erect steel trusses by June 17, 1953. The seventh and last of the prestressed girders was erected on Oct. 7, or about 3½ months later than the steel trusses would have been in place. And now, more than one year after the general contract was let, the Greensboro

(*Continued on page 12*)

engineered for the job!

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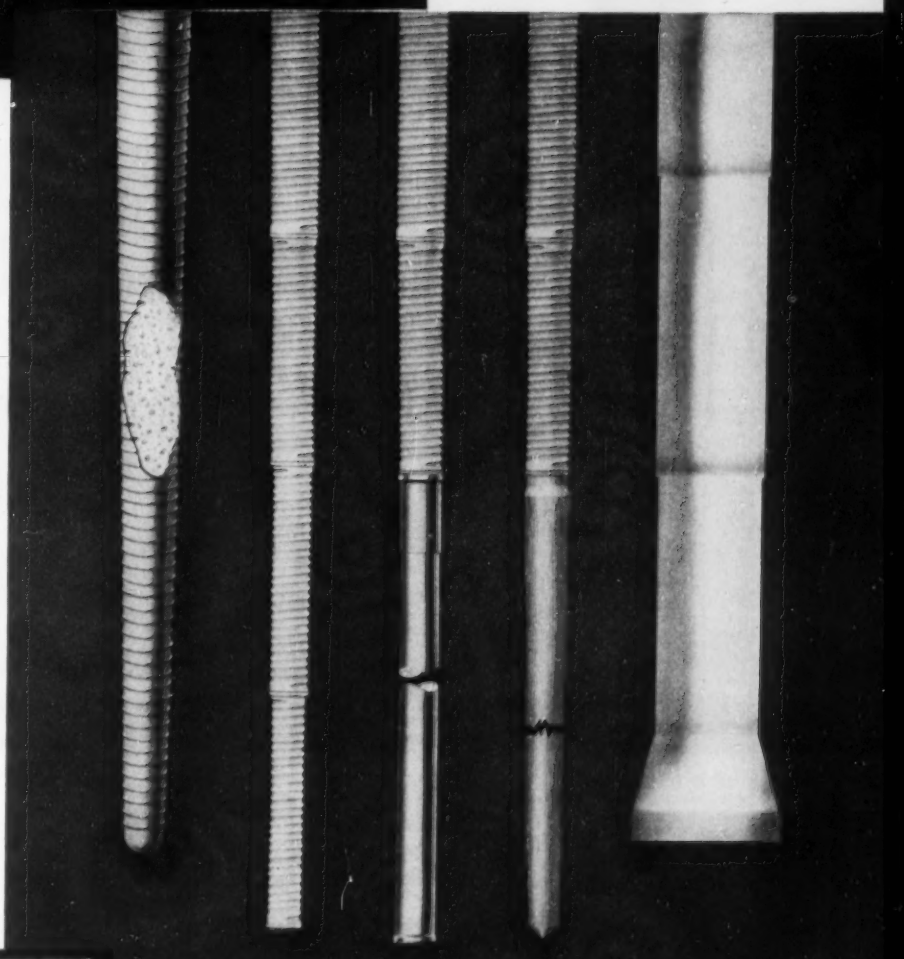

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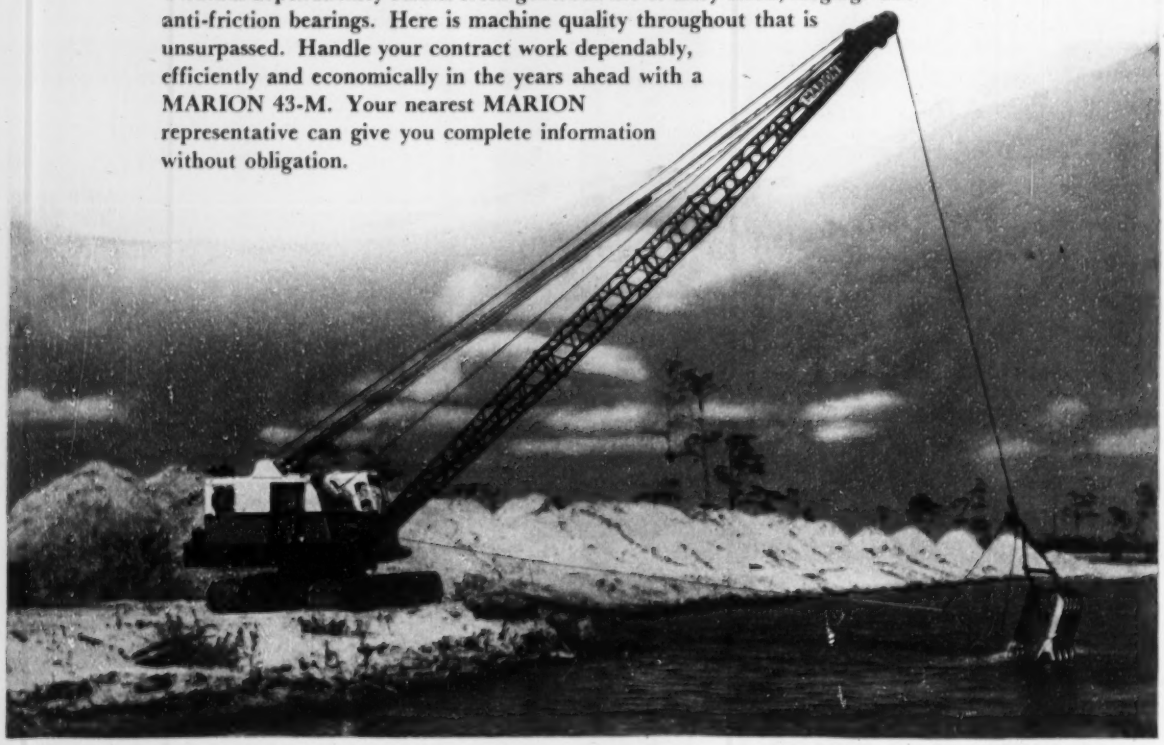

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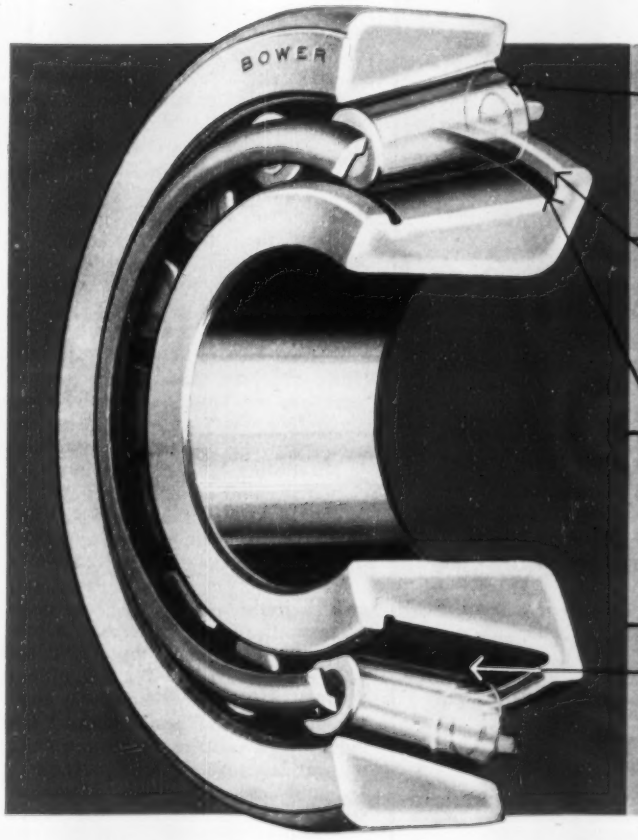

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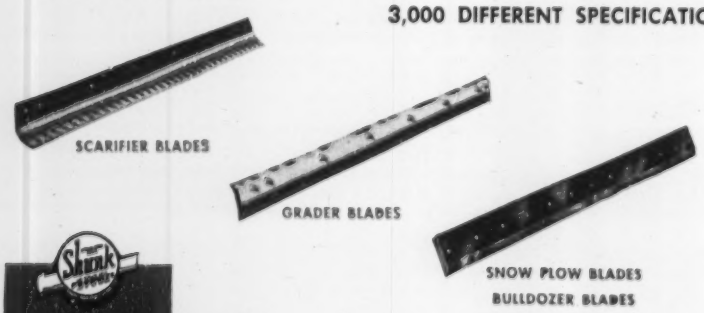

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READER COMMENT

gymnasium still has not been completed.

When the facts are examined, the story of the Greensboro gymnasium fails to make out a case, either costwise or in construction time, for prestressed concrete construction.

E. E. HANKS
District Engineer, American Institute of Steel Construction
Greensboro, N. C.

Progress toward unity

SIR: Although I lean toward the National Society of Professional Engineers as the most appropriate vehicle for professional unification, I agree heartily with the statement in your reply to reader John T. Marshall, Jr. (April 1, p. 8) that all engineers, including editors, should take part in the discussion of the question—editors especially, because they can stimulate general discussion while maintaining their obligation to present both sides, as you do.

The stimulus for this letter is a clause in an inconspicuous sentence in your reply, and I quote: "Today NSPE has only one-fifth to one-fourth of the membership of the societies represented by EJC WHEN DUPLICATIONS IN MEMBERSHIP ARE ELIMINATED." To my mind, the duplications in membership strikingly reflect the nature of the problem, and may suggest a solution.

I have been a member of ASCE since 1921, and joined the Seattle Section when I came here ten years ago. However, I have maintained my membership in the Texas Society of Professional Engineers, because it is an active, aggressive organization, skillfully demonstrating how a professional society may fulfill its purposes.

The Texas society has helped to improve the engineers' license law in the state, and has policed it with dignity and effectiveness. It has undertaken studies of the salary scales paid engineers by the state, formulated a program on salaries and supported it before the legislature. Its committees have studied the deficiencies in engineering education, and examined the curricula of colleges and universities with a view to possible improvement. It publishes a monthly magazine, stressing articles and committee activities bearing on professional development and the obligations of the profession to the public and acquainting engineers in various branches with the common interests which they have with those of other branches.

It does NOT devote space in its publication, nor time in its meetings, to technical papers or discussions.

(*Continued on page 15*)

Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

CAST IRON PIPE being unloaded as shown above may be for use in the city's water, gas or sewerage system. The more-than-a-century service record of cast iron pipe in this country is a strong reminder that the installation of this pipe will be not only for the benefit of the present generation but for many more to follow.

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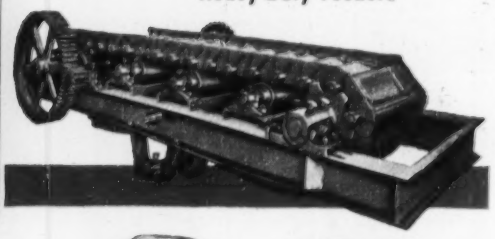

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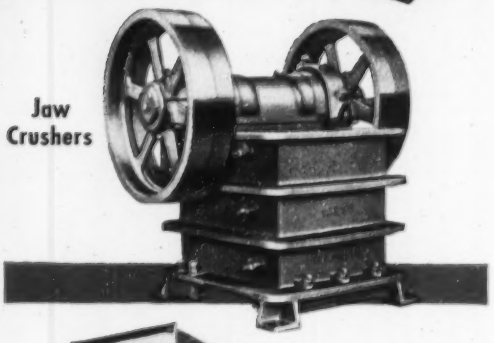
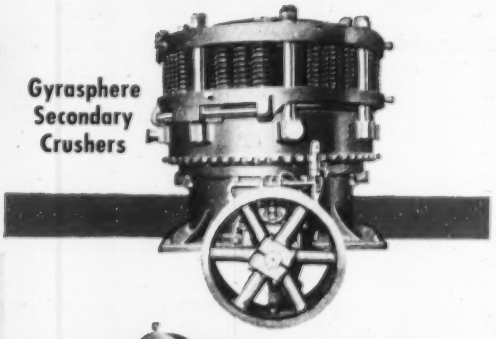
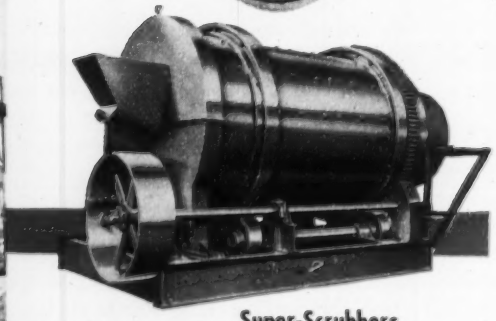


Jaw Crushers

Vibrating Screens



Gyrasphere Secondary Crushers



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READER COMMENT

The civil engineers who are leaders in TSPE are, to a large extent, the leaders of the Texas Section of ASCE. The current president of NSPE, I am quite sure, is a past president of both TSPE and Texas Section, ASCE. In ASCE the technical phase is stressed.

This duplication of membership and leadership arises from the fact that neither organization alone fulfills all of the requirements of a professional society, but both together do to a large degree.

It would seem logical that the ultimate organization will embody an over-all society dealing with the professional requirements and responsibilities of engineers as a whole, with such branches as may be necessary to service the needs and development along technical lines.

It is improbable that such an organization can arise full-blown. It would seem that the transitional organization might well be an organic union of the two existing groups, each continuing in its field of greatest effectiveness, the founder and similar societies for the technical phase and NSPE for the professional. This interlocking organization should be thoroughly grounded on the interests and activities of individual engineers, giving emphasis to both state and local sections.

GEORGE S. VINCENT
Bureau of Public Roads
Seattle, Wash.

CALENDAR

Industrial Waste Conference, Purdue University, Lafayette, Ind., May 10-12.

Annual meeting, Building Officials Conference of America, Inc., Bellevue-Stratford Hotel, Philadelphia, Pa., May 10-13.

Engineering Institute of Canada, annual meeting, Quebec, May 12-14.

ASCE Structural Conference, Continental Hotel, Kansas City, Mo., May 13-14.

National Fire Protection Assn., Hotel Statler, Washington, D. C., May 17-21.

American Water Works Assn., annual conference, Seattle, Wash., May 23-28.

California Society of Professional Engineers, convention and trade show, Hotel Mark Hopkins, San Francisco, May 27-29.

Column Research Council, Engineering Societies Building, New York, May 27-28.

National Society of Professional Engineers, Schroeder Hotel, Milwaukee, Wis., June 9-12.

American Society for Engineering Education, University of Illinois, Urbana, June 14-18.

American Society of Civil Engineers convention, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., June 14-19.

American Institute of Architects convention, Statler Hotel, Boston, Mass., June 15-19.

Conference on Thin Concrete Shells, Massachusetts Institute of Technology, Cambridge, Mass., June 21-23.

Third International Water Supply Congress, London, England, June 20-23 (Secretary General, L. Miller, 34 Park Street, London W 1).

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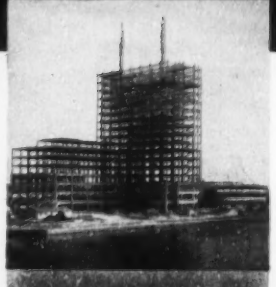

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Vol. 152, No. 18

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THE CONSTRUCTION WEEK

DOUBLE VICTORY?—Both sides claimed a victory in that battle between the city of Elyria, Ohio, and the Ohio Turnpike Commission.

Elyria, violently opposed to turnpike plans to run the big superroad through the city, has threatened injunction proceedings against the commission. The commission went to the state Supreme Court with a demand for a writ to force Elyria to say where it wanted to put a relocated street and utility lines. The court refused the writ with the statement that the city has the "privilege" of making such a decision, but not the duty to make it.

Commission authorities said this was a victory. The court said that only the commission has "the duty" to relocate roads. They announced they will proceed to take bids on the three-mile section through the city. Replied Elyria's Mayor J. Grant Keys: Any contractors entering the city will be regarded as trespasers.

LOCATION FIGHT—And in Indiana, the state's newly activated turnpike commission was embroiled in what seemed to be an equally vicious battle with residents of South Bend.

Commission engineers want to locate an interchange (with heavily traveled U. S. 31) in suburban Roseland, directly north of the city. Residents want the interchange at a site outside the city a few miles to the northwest

PREDICTABLE TORNADOS?—A the 35 to 40 tornados that swept through Oklahoma, Texas, Arkansas, Louisiana, Illinois and Iowa last week-end were forecast by the U. S. Weather Bureau, from one to five hours in advance.

The Weather Bureau has a program under way which tries to get local areas to inform its residents on tornados. Some states like Oklahoma have over 140 towns that have their own alert system. Radio, television and newspapers plus state police, electric and telephone companies cooperate with the Weather Bureau in informing the residents on what to do without causing to much hysteria.

In order for the Weather Bureau to issue a tornado warning it must be pretty certain that weather conditions warrant it. In most cases the Weather Bureau could issue warnings close to 24 hours ahead but it deliberately reserves its warnings to three to four hours in order not to alarm or get people excited. Bureau believes that is sufficient time.

HOWARD BRIDGE?—Kansas City's ASCE section wants the new Mississippi River Bridge (to the municipal air terminal) named the Ernest E. Howard Bridge, in honor of the late president of the national society.

Versatile Tractor Shovel Disposes of Garbage, Handles Other Jobs for Evansville, Wis.

by BRADEN E. WOLFF

Superintendent of Streets, Evansville, Wis.

The HD-5G Tractor Shovel with 1-yd. bucket spreads refuse in old gravel pit, which was previously a dangerous menace.

Like thousands of other towns, we must buy equipment that can handle a wide range of jobs, because we operate on a limited budget and often cannot justify the purchase of a machine just to handle a certain job. The equipment versatility we seek is typified by an Allis-Chalmers HD-5G, 1-yd. Tractor Shovel, which we bought primarily for garbage and rubbish disposal but which we use for other jobs, too.

The Sanitary Landfill system of disposal is used in our town because of its economy, safety and benefit in recovering otherwise useless land. Refuse is picked up by a 10-yd. garbage truck and an open truck, and is hauled to an old gravel pit covering about three acres on the edge of town. The tractor shovel spreads the material, compacts it by traveling over it and then covers the refuse with dirt or sand. The landfill can be built up in successive layers until the level is the same as that of surrounding land. Cover material consists of street sweepings, discarded foundry sand, and overburden from a sand pit adjacent to the landfill.

It is estimated the old pit now being used will provide disposal capacity for three or four years. When filled, this one-time menace will be used for a playground. There are other pits nearby that also will be put to such double use — first a means of refuse disposal, then a site for healthful playgrounds for the community. Needless to say, citizens and town officials are very happy with the new system.

We find that our collection equipment can handle Sanitary Landfill operations efficiently in a total of two days a week. The remainder of the time, the tractor shovel is available for sidewalk and street work. It is used for both construction and maintenance, as well as stockpiling, loading — in fact, any jobs there are to be done. It either travels from job to job by its own power or is hauled on a trailer behind one of the trucks.

★ ★ ★

Counties, cities and towns throughout the country are finding Allis-Chalmers Tractor Shovels the ideal machines for all-round work. They are always busy because they do so many jobs so well. Usefulness is further widened by a variety of quick-change attachments for the HD-5G, including 2-yd. bucket for snow, coal and other light materials; trench-hoe for digging trenches and foundations; blades for dozing; and rear-mounted scarifier for breaking up old surfacing and for more efficient excavating.

See the HD-5G and the three larger size tractor shovels at your Allis-Chalmers dealer's. Let him show what they can do on *your* job.

After packing material well with its 16,200 lb. of weight, the tractor shovel carries fill from nearby pile and spreads it to completely cover refuse.

Portion of pit in foreground has already been filled to level of surrounding land. Pit in background is yet to be filled. Land will be used as a playground as it is filled in.

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WASHINGTON OBSERVER

Administration officials expect housing mortgage intrest rates to drop some time this summer. They figure it this way: For weeks mortgage lenders have been out beating the bushes for business. In a year's time, mortgage money has switched from scarce to plentiful in every section of the country (see page 21). The only place where mortgage money is still scarce is the southwest.

Republicans hope the drop will give a new boost to home sales in the same way that a similar drop in long-term bond sales has stimulated investment in public works and corporate expansion.

Washington's experts say mortgages may even go to a premium. The first signs of the break they expect to appear in New England.

•

So far, the housing investigations haven't cut down FHA's business. New commissioner Norman P. Mason notes that, for the first week following the blow-up, applications for insurance were the highest in a year. And there has been no noticeable decline since then. But FHA's 75 field offices are being extra careful in approving loans, in making appraisals, and in inspecting construction. Mason spotlighted the new policy in a letter to field offices saying that the FHA's main reason for being is "to serve the public," not the construction industry.

Lenders are bound to be tighter on home improvement loans—especially those that don't make some essential repair or permanent improvement to the house. It's still uncertain what the "scandals" have done to the fixup market—some say it's been hurt, others that there's no change. But the tighter administration will have some downward effect.

•

Already you can spot changes Congress plans to make in the housing law. Here are some you can count on:

New restrictions on "mortgaging out" will make it impossible for builders to pocket any amount of the insured money that's above the actual cost of the property. Chances are, though, that "mortgaging out" won't be banned entirely. An efficient builder who can build for, say, 80% of the FHA-appraised value of rental property, would still be entitled to insurance on his total cost, thus completing the project without tying up any of his own money. But he would be barred from keeping any of the insured borrowing that's in excess of the actual cost.

Home improvement regulations will be much tougher. Lenders will be insured for only a part—perhaps 75%—of each home improvement loan.

•

Congress will block easing of credit terms for housing which the Administration got in the housing bill that passed the House. The proposal for non-down-payment, 40-year-insured mortgages is just about dead.

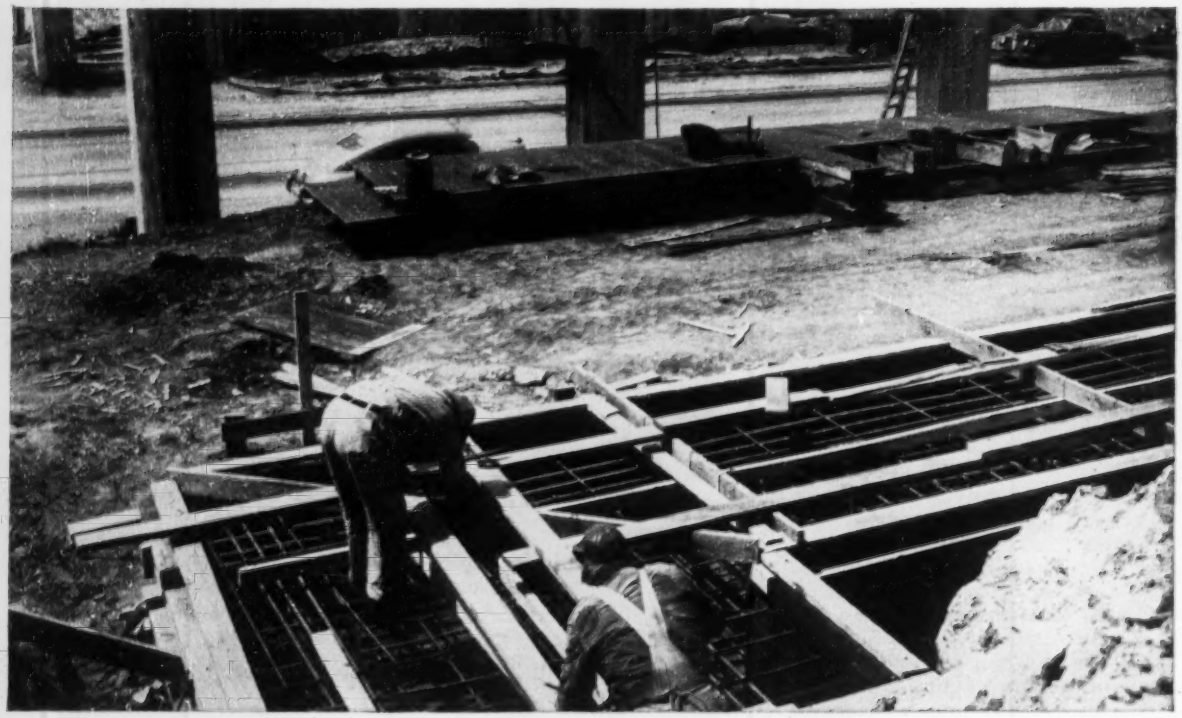
Easier and bigger loans for apartment modernization are hit, too. House bill permits $1,500 per unit with no maximum; present law says that no more than $10,000 can be insured for any one project. Final bill will cut back House liberalizing severely.

•

St. Lawrence Seaway is near its last test. The House action this week leaves only one more congressional step in the decades-long proposal to build the seaway. Once the Senate and House versions are cleared up, the bill will go to the White House where Eisenhower is eager to sign.

•

Upper Colorado River legislation was approved this week by a 12-to-9 vote of the House Subcommittee on Irrigation and Reclamation. An even closer vote is looked for when the measure comes up before the full 26-member Interior Committee next week, but the group is expected to report the bill to the House.



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'54: Another big year for homebuilders

But the competition is tough, so builders must absorb their higher costs. Some say their costs are stabilizing

An ENR staff report

Homebuilding is rolling along at a fast clip this spring, and seems likely to better 1953's 1.1 million starts before the year is over. Many builders have boosted the 1954 programs they had planned earlier.

Competition is brisk. That's why most builders are absorbing higher costs rather than raising prices. Some estimate that they have cut their profit margins to 6% or 7%, when they used to figure on 10%. And most of them say they are including extra features in their houses this year in order to keep sales moving. Customers are getting choosier.

As one midwestern builder said: "What we have to contend with are people who read in shelter magazines about a dream house built in Phoenix, Ariz., for $7.20 a sq ft, then want the same house here."

In some areas, however, builders say that their costs are no higher because labor is more productive, offsetting higher wages and material costs. Subcontractors are a little hungrier than last year, are willing to shave their bids to keep busy. A few builders credit technical innovations—such as post-and-beam construction and labor saving from wide use of plywood—for keeping costs down.

These are the major conclusions of a survey by ENGINEERING NEWS-RECORD of over 100 homebuilders in 20 U. S. cities. You can get a good idea of how housing starts will be going for the next few months by looking at ENR's figures on mass housing awards and the government charts (pages 21 and 22). Requests for FHA loans jumped sharply in March. The number of requests for VA appraisals had started to climb sharply the month before. FHA has just reported that loan applications in late April were running at the highest level since May 1953.

• **Boom's cause**—The main reason for the revival of the building boom, everybody agrees, is the easiness of mortgage money. As one builder remarks, "For the first time in years, the lenders are tipping their hats to us."

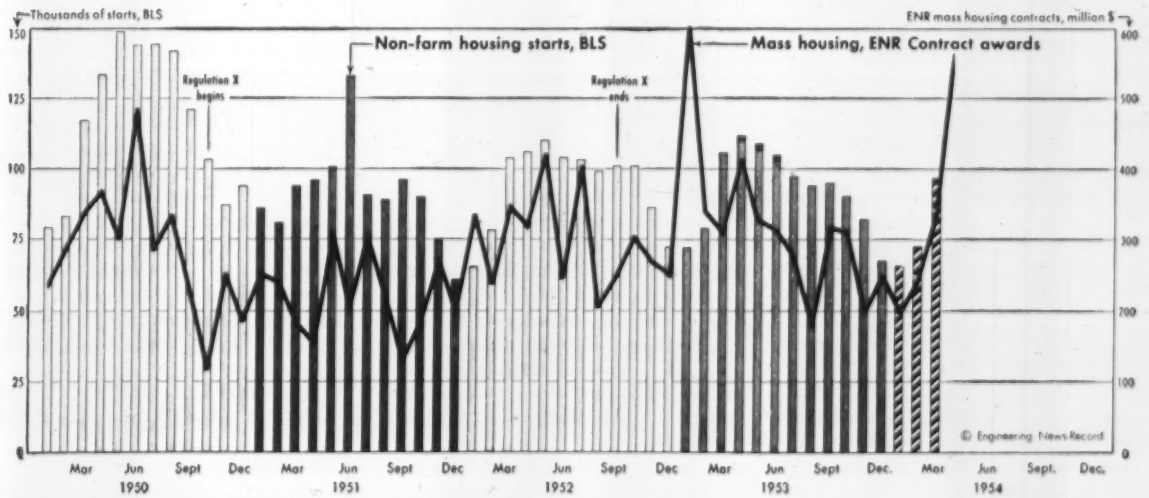
But they still have headaches. The biggest ones are: (1) The difficulty of many buyers in making down payments; (2) the problem of owners of older houses in selling their homes in order to buy new ones; (3) the fact that costs of raw land and development costs are rising faster than building costs.

Not much can be done about the last problem, but builders are confident that their first two headaches will be much improved when Congress gets around to passing the bill. This provides that older houses will get the same terms from the Federal Housing Administration as new homes, and gives the President authority to lower down payments on FHA-insured loans, increase loan limits, and lengthen terms.

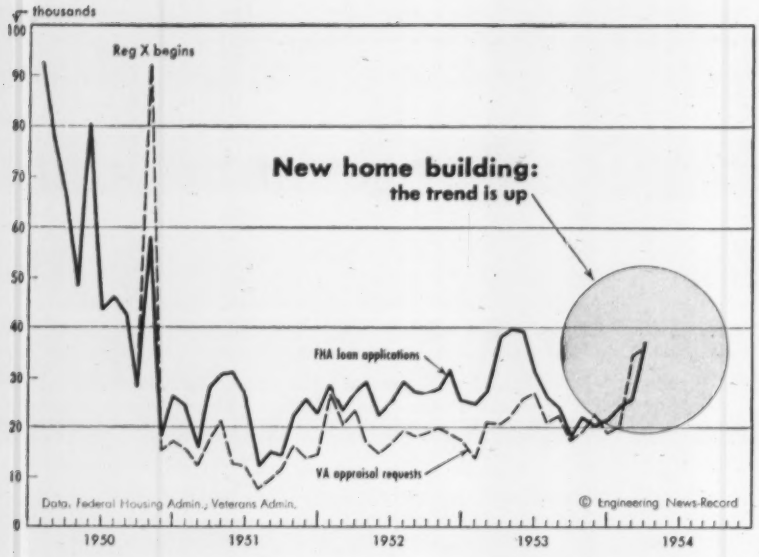
• **No trade-in**—So far, not many builders have been using the trade-in plan for old homes which the National Association of Home Builders worked out with FHA—nor have they used any trade-in method.

One reason for this is the difficulty in getting sellers of old houses to accept realistic valuations. They can't get used to the fact that older houses no longer have the scarcity value they possessed two or three years ago. Another reason is that, so far, business is too good. As one builder says, "You don't start trading until you have to, and we haven't had to." Finally, many old house owners are aware of the pending housing bill. They expect that their homes will be easier to resell after it becomes law.

Most builders say they are offering more house for the money than last year, though they are not making as much profit per house. Many of them hope to make up in volume what they



HOUSING BOOM—ENR's contract awards for housing projects of $300,000 and above pushed close to an all-time high in April. That indicates a high level of housing starts for at least the next few months.



. . . Another big year for homes

lose by cutting their per-unit profit.

Without exception, they are confident they can get plenty of mortgage money to finance construction. They report that life insurance companies and other lenders are coming back into the mortgage market.

Furthermore, the feeling is that mortgage money will get easier. Much of current construction is being financed by VA mortgages—where down payments are little or nothing—and on FHA mortgages, where the down payment is a bit higher. Although VA mortgages currently are being made at a discount of 1% or 2%, you get predictions in many areas that by summer VAs will be selling at par. In many places, FHA's already are selling at par.

• **Interest pattern**—Interest rates follow the usual pattern of being lower in the East, where the bulk of lending institutions are located, and higher on the West Coast and in some parts of the South and Midwest.

In Boston, for instance, good conventional mortgages are being made at from 4½% to 5%, with FHAs and VAs selling at par. In Los Angeles, rates on conventionals range from 5% to 6%, with FHAs selling at 98% of par and VAs from 96% to 98%.

The housing boom spreads pretty much all over the U. S. Even towns which have been hit by the current business "readjustment" show up well in the ENR survey. In Detroit, cutbacks in auto production this spring have led to some unemployment, and the district is officially classified as a "distress" area. Yet sales around Detroit are booming. Model homes are jammed on weekends and enjoy steady traffic during the week. Almost universally, Detroit builders are planning more homes this year than in 1953, and more than they had scheduled earlier this year.

The big demand here is almost all for one type: three-bedroom brick dwellings, prices between $12,000 and $16,000. Few high-priced homes are being built.

The same tendency to medium-priced homes shows up in other cities, as New Orleans. But the trend is different in other places. In San Francisco, for instance, there is heavy demand for houses under $10,000. And some builders there report that more buyers are shopping in the $20,000-$30,000 range, though demand is not as urgent as a couple of years ago.

• **The biggest problem**—The problem more builders mention than any other is the rising cost of raw land. The reason for this is, of course, that as more locations are built up, the scarcity value of other sites grows, unless the builder is able to move further out from the center of the city. Even miles from town, however, big landowners have become well aware of the profit possibilities of their land. Some are willing to hold on for years to get their price. Sometimes, as in New Orleans, topographical conditions force builders to fill swampland and drive pilings, thus pushing up costs.

A related problem is the rising cost of developing land. Municipal specifications and zoning are getting tougher. Requirements for paving, sewers, and water are stricter than they used to be. In some parts of the U. S., particularly in metropolitan Boston and in some parts of the New York City commuting area, local governments are upgrading their zoning rules. The reason: by cutting down newcomers, it keeps their schools from being overrun. Areas that used to be zoned for half-acre lots are being zoned up to one acre, and so on up the line. That, too, means higher development costs.

Here are the city-by-city highlights of ENR's survey, working from west to east:

Los Angeles—Land costs here have risen much more than building costs. Tract builders are going further and further into the hinterland to find reasonable prices.

San Francisco—A very strong, but competitive, market. Building costs here are rising faster than costs of raw land.

Seattle—Demand here is better than builders expected in January. Raw land costs have risen to about 15% of total cost of house and lot.

Salt Lake City—Builders here are scheduling about the same number of homes as they had planned in January. Building costs have risen very little.

Omaha—Prices of older houses have dropped 5% to 10% during the past year.

Oklahoma City—Building costs are steady here.

Houston—Conventionally financed homes have been cut back about 20%, but demand is great for homes financed by VA mortgages.

Kansas City—Air-conditioning grows more popular here. One builder predicts that in 10 years most new buildings will be air-conditioned.

Milwaukee—Demand here has not risen above what was expected in January.

Chicago—Demand here has outstripped yearend estimates. Labor productivity is increasing.

St. Louis—Cost of raw land here is increasing faster than building costs.

Nashville—Building costs are stable here. Estimates are that housing starts will be up 25% this year over 1953.

Cleveland—Builders have no plans here to increase previously scheduled building. Costs of improved lots have "skyrocketed."

Atlanta—Starts probably will be up at least 20% this year. Costs appear to be leveling off.

Miami—Builders plan more homes this year than last. Costs are not rising.

Philadelphia—Home starts will outpace last year. Older homes are not moving very quickly.

Boston—Building estimates have been increased slightly since January.

GAILLARD CUT'S Contractor's Hill, at right, where widening crack has been noted.

Panama Canal's slide alley in trouble again

Ever alert to signs of impending slides in the Gaillard Cut section of the Panama Canal (which in its four decades of operation seldom has been without the presence of a maintenance dredge) engineers have noted new and continuing opening and lengthening of one of the cracks in Contractor's Hill at the canal's narrowest point.

Although news stories have accented impending disaster, Maj. Gen. John S. Seybold, Governor of the Canal Zone, says this is an exaggeration. Without minimizing the potential seriousness of the situation, he believes any necessary remedial work can be initiated and finished in time to prevent damage to the canal.

The crack, which has been under observation since 1938, is near the right-hand edge of the photo, and runs parallel to the canal. Extending vertically from a point about 300 ft above the water and 20 ft below the top of the hill, the crack is said to have been probed to a depth of 600 ft. It also has been noted that there is a fault, extending from a little above water elevation in a direction roughly parallel to the crack, and the possibility is not overlooked that the two may be connected. The wedge of agglomerate rock that is thus separated from the balance of the hill by the crack is estimated to include about 3 million cu yd. A favorable factor is that the agglomerate is bedded in such a way as to promote stability unlike adjacent deposits of Cacaracha shale, which have been the cause of slides in the past. Total excavation from slides in Gaillard Cut from June 30, 1913 to June 30, 1952 amounted to nearly 52,500,000 cu yd.

No remedial measures have been started pending the outcome of a diagnosis now being carried out by two Corps of Engineers geologists, Edward B. Burwell and Thomas Thompson. Core drilling and a search for further cracks by a system of criss-cross trenching are being done.

A more detailed investigation is to be made later. General Seybold plans to appoint a four-man board from among the top experts in the country to examine the situation on Contractor's Hill and offer recommendations.

S.C. bidding issue

ASCE protests new call for engineering bids

Even though charges of unethical conduct are still pending in the American Society of Civil Engineers against engineers who participated in bidding for engineering services on a South Carolina bridge last fall, the South Carolina Highway Department has issued a new call for bids covering several additional bridges. About $3 million of work is involved, for which engineering service bids will be opened May 11.

Quick to note this new challenge to its code of ethics, the ASCE, through the executive committee of its board of direction, which met in Sacramento, April 29, protested to South Carolina's Governor, James F. Byrnes.

The president of the society, Daniel V. Terrell, dean of engineering, University of Kentucky, suggested to the governor that he "direct the discontinuation in the public interest of the practice of calling for bids for professional engineering services and look to the securing of such services on a professional and ethical basis."

Emphasis was placed on the "public interest" element by citing an article in the May "Civil Engineering" giving legal precedent for ASCE's stand.

R.I. toll projects

New authority to build 40-mi road and bridge

The Rhode Island Legislature last week made provision for a 40-mile toll highway that would link turnpike projects in the neighboring states of Massachusetts and Connecticut. The project also would involve construction of a crossing of the east passage of Narragansett Bay between Newport and Jamestown.

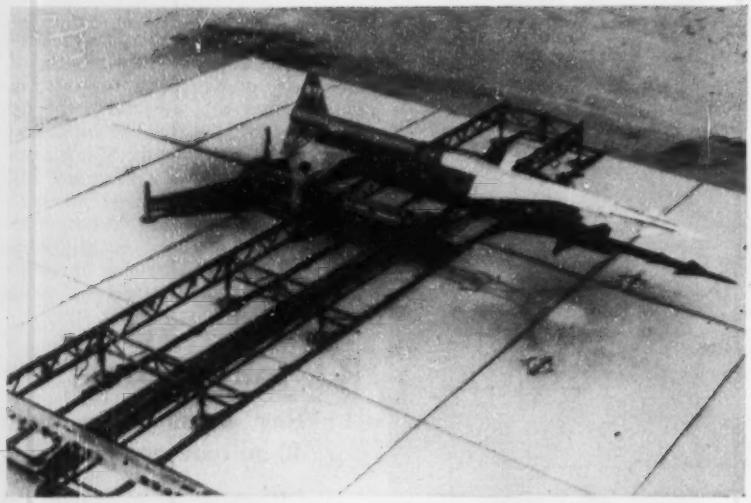
Toll road legislation created a five-member turnpike and bridge authority, which includes the state Director of Public Works. Aside from handling new construction, it is empowered to acquire the Jamestown-Saunderstown Bridge as a necessary part of the proposed toll route. This toll structure spanning the west passage of Narragansett Bay is state-controlled but under its own bond issue.

The proposed Rhode Island toll road which would carry forward the projected New England shoreline expressway from New York to Cape Cod, would run from Hopkinton at the Connecticut border to Tiverton on the Massachusetts line.

No official cost estimate has been given. A governor's commission a year ago estimated the 40 mi. of roadway and a Jamestown-Newport span would cost $53 million. No figure has been given on acquisition of the Jamestown-Saunderstown Bridge.

The new authority will be faced with the necessity of deciding whether a tunnel or a bridge is the more feasible for the Jamestown-Newport crossing. The Navy already has given approval to the proposed bridge site; the tunnel idea has not been considered officially.

The legislature exempted from the authority's control the new Tiverton-Portsmouth bridge currently under construction with state funds, although this span will be a link in the toll road. Another provision limits gas stations along the right of way to 25% for any one oil company.



GUIDED MISSILE, readied on launching rack, was brought up by elevator from . . .

CONCRETE MAGAZINE underground.

Nike defense installations to go under contract soon

The first operational Nike guided missile anti-aircraft installation is now under construction and slated for completion early in July at Lorton, Va., 17 mi from Washington.

It is one of several which will ring the District of Columbia to provide an umbrella cover estimated at 25 mi in diameter and 60,000 ft high. Approximately 40 other installations representing a total cost of upwards of $75 million are to be built at once by Army Corps of Engineers across the northern United States. To be completed within the next 24 months these installations will guard what the Joint Chiefs of Staff describe as the 14 critical defense areas of the nation.

• **Installations in north**—Areas to be guarded and for which site construction contracts are almost all let include: Norfolk, Va.; Washington-Baltimore; Philadelphia; New York; Boston; Pittsburgh; Cleveland; Chicago-Detroit; Colorado Springs-Denver; Hanford, Wash.; Seattle; Los Angeles; San Francisco, and one unnamed site.

A Nike installation consists of two areas, the launching area and the control area. The launching area consists basically of guided missile magazines constructed of concrete below ground, fuel storage, and maintenance facilities. The control area consists primarily of radars to track the enemy, track the defending Nike, and radars and equipment to coordinate and dictate corrections to Nike.

The two areas need to be at least 1,000 yd, but not more than four miles apart, and the two areas must be "in line of sight."

While each installation presents a local cost problem Army Engineers figure that construction costs of a typical control area may vary between $100,000 and $150,000. Engineers estimate that a launching area could vary between $350,000 to $500,000.

The Lorton, Va., installation and others soon to be constructed are designed to last a minimum of 10 years. This was decided upon by the dictates of economy coupled with the fact that within that time Army figures that the aspect of guided missile operations will alter considerably possibly rendering the present anti-aircraft concept obsolete.

There will be up to four Nike battalions, each of 448 persons and each consisting of four firing batteries, in a single defense area depending upon local population and manufacturing density.

• **Concrete magazines**—Each Nike battery under current plans will operate out of two concrete missile magazines. Each magazine consists of a concrete structure built entirely below ground costing approximately $75,000. The structure contains sound and explosion-proof launching control rooms, storage and maintenance facilities for missiles and an automatic elevator for raising and lowering missiles to surface for firing. The elevator receives a missile in horizontal position from storage then as it is being raised to the surface the missile automatically and simultaneously is raised to vertical firing position. Upon reaching the surface, missiles may be moved to auxiliary launching racks or be fired immediately from the elevator platform.

Construction responsibilities: Contract work by district and division engineers will include the installation of utility systems, including fuel-oil storage facilities, and government furnished equipment; and construction of earth mounds, roads, concrete pads, hardstands, and all buildings and structures except barracks, administration and supply buildings and ration breakdown buildings. Site clearing will be done by contract, but clean-up work will be handled later by troop units.

• **Top priority scheduling**—The program for construction of on-site facilities for surface-to-air missile battalions has priority over all other Army construction work with the exception of critical ammunition maufacturing projects.

Construction contracts: Construction of complete Nike installations is contracted for under the standard lump-sum, unit-price-type construction contract.

Site specifics: An area of about six acres is necessary for battalion headquarters, administrative headquarters, operative storage and housing facilities. The distance from there to the launching area may, in certain cases, be as short as one-half mile but, may not exceed 6,000 yd.

Housing for operating personnel of launching facilities will require about one acre and be not more than 500 yd away from the nearest launcher. Six-foot-wide concrete walkways, over which missile dollies are hand wheeled between missile assembly building and fueling station, must be level and smooth surfaced.

Seawater desalted six ways

Department of Interior lists processes found most feasible by its research contractors after intensive two-year study

The Interior Department believes that its salt water conversion program in the past two years has made it possible to produce fresh water from seawater for industrial use at costs competitive with what some companies now pay to develop fresh water sources.

If fresh water can be provided at a cost of 40 cents per 1,000 gal ($125 per acre-foot), it believes the process could be used by some municipalities. Many industrial users now pay several times this rate for water supplies.

One of the processes investigated—the membrane process—could prove an answer to some irrigation water needs. Since its costs depend on salt content, it may make the desalting of brackish water practical. Cost estimates for treating different brackish waters run from $4 to $40 per acre-foot.

• **Six promising processes**—The six processes which now look most promising (see table) are all in various experimental and demonstration stages. Thus, officials under David S. Jenkins, the program coordinator, naturally hedge their cost estimates. But they believe that the progress that has been made in the past two years gives little cause for pessimism.

The saline conversion jackpot eventually may go to a dark horse. (Interior's contractors are working on seven additional processes, any one of which might prove best.) Right now, though, this is the line-up:

• Vapor compression distillation is clearly ahead for seawater treatment. It was used for some sizable locations during the war. In the past few months, the Badger Manufacturing Co., of Cambridge, Mass., has come up with a radically new type of compression distillation equipment. It involves creating a turbulence in water at the boiling point, producing steam without as much energy as is normally required. This device, still in the laboratory, could easily halve costs, perhaps could go on to a 30 to 40-cent figure.

• Interior has signed a contract with Ionics, Inc., Cambridge, to field-test Ionics' electric membrane process (ENR Feb. 25, p. 22), probably first in Arizona and South Dakota. The brackish waters to be checked contain 4,625 and 885 ppm of minerals. The process uses an electric current to move the minerals through plastic membranes, and provides cells with purer water. Rohm & Haas, Philadelphia chemical company, while not under contract, is sharing its research results with Interior on similar work.

• On solar evaporation, Bjorksten Research Laboratories, Madison, Wis., is looking into plastic apparatus. Since there are no fuel costs, providing cheap equipment is the only way to cut overall costs. Officials feel this process may become competitive only after costs of other energy sources rise.

• Temperatures near 700 deg F and 3,200 psi pressures would be used in a proposal by Nuclear Development Associates, White Plains, N. Y. At such temperatures pure water can't exist; there is no distinction between plain water and steam. But salt water can exist and can be distilled into fresh with greater efficiency in this high range. Scaling up NDA's work might bring problems, first in design to use these temperatures and pressures, and second, in corrosion at such heats. Titanium has been suggested for use here. Whether the company's 30 to 80-cent estimate can prove out depends on solving these problems.

• The thermal differential method's economics depend on having one source of salt water that is hotter than another. The hotter one is evaporated under vacuum, with water vapor condensed by the cooler liquid. Such a plant could be located where an industrial plant uses seawater for cooling, or might use a colder than normal seawater pumped up from deep in the ocean. The University of California (Berkeley) is investigating this, now using state funds. The French are building such a plant at Abidjan on the coast of French West Africa (ENR March 12, 1953, p. 38).

• Multiple effect evaporation, a continuous process for evaporating more and more water, is used in such locations as Kuwait, in the Middle East. Costs seem too high for U. S. use.

Conversion processes

(Cost: 1,000 gal, in 75 mgd plant)

VAPOR COMPRESSION
- $1.25-$1.50—using presently developed equipment.
- $.60-$.75—based on equipment now in laboratory.

ELECTRIC MEMBRANE
- Cost depends on salt content.
- $1.25-$1.50—for seawater.
- $.125 for 10,000 ppm brackish water.
- $.0125—for 885 ppm brackish water.
- All figures estimated from laboratory-scale equipment.

SOLAR EVAPORATION
- $2 or slightly less.
- Some chance to reduce equipment costs—best chance on long run, when other energy types' cost increase.

THERMAL DIFFERENTIAL
- $.70-$.80—at special locations where waters with 16 deg (F) difference in temperature (based on small-scale unit).

HIGH TEMPERATURE, PRESSURE
- $.30-$.80—estimate of company, assuming no great problems in scaling up from small laboratory apparatus.

MULTIPLE EFFECT EVAPORATION
- $1.50-$2.00—operator's estimate (based on 1 mgd).
- $3.00—other companies' estimate.

• **Other possibilities**—These processes are the only ones developed to any great extent. In addition there are these seven:

Freezing out water: Theoretically, it takes less energy to freeze water at 32 deg F, than to boil water at 212 deg.

Osmotic membrane: A plastic membrane might be developed through which water, but not minerals, could pass.

Molecular oil films: This is another type of osmotic membrane, in which the surface between oil and water layers is used to repel minerals.

Solvent extraction: University of Texas scientists are testing a number of solvents for water that won't dissolve in salt water. These materials must then be able to have the water removed by cooling or heating 20 or so degrees.

Thermo-osmosis: It may be possible to develop a material which will adsorb water, and from which the water can later be removed by heating.

Electrogravitation: This involves using an electric current to concentrate minerals in one place, making this water heavier. The purer, lighter water then rises.

Box Canyon Dam dispute causes contractor change

A target date dispute that has halted construction of Box Canyon Dam on the Pend Oreille River in northeastern Washington since April 9 has resulted in a change of contractors for the $16-million project.

Morrison-Knudsen Co., Inc., will take over the job of completing the 60,000-kw project, located 53 mi downstream from Albeni Falls Dam. The agreement between the original contractor—a combine of Pacific Bridge Co., San Francisco; General Construction Co., Seattle; and Shea Co., Alhambra, Calif.—and the Pend Oreille County Public Utility District has been dissolved.

Federal contract disputes law adopted

After almost three years, the right of broad court review of decisions of government contracting officers has been restored. Congress last week completed action on legislation to overcome the effects of the Supreme Court decision of Nov. 1951, in the Wunderlich case.

In that case the court held that decisions of contracting officers rendered in connection with the "standard disputes clauses" in government contracts are final unless there is evidence of fraud on the part of government officers.

Now it will be possible for a contractor to seek court review of a case in which he charges that the contracting officer was arbitrary, capricious or so grossly in error as to imply bad faith.

• **Court was divided**—Previous to the 1951 court decision, it generally was understood that administrative decisions rendered under these disputes clauses could be reviewed on the ground that they were fraudulent, arbitrary, or capricious. However, in the Wunderlich decision the majority of the court rejected arbitrariness or capriciousness as grounds for review and limited judicial review to the sole ground of fraud which is defined as "conscious wrongdoing, an intention to cheat or be dishonest."

A minority dissent, written by Justices Douglas and Reed, held that the majority opinion had the effect of making a tyrant out of every contracting officer. They said, "He has the power of life and death over a private business even though his decision is grossly erroneous."

The Senate passed S 24 last year, but the House did not act until last week when it amended the Senate bill to delete reference to the role of the General Accounting Office in such cases. The House position was that it feared that mentioning GAO in the bill might result in it assuming additional powers, setting it up as a court of claims.

The Senate accepted the House amendment, holding that the change would not add to or restrict present jurisdiction of GAO either in the course of a settlement or upon audit, but simply recognizes the jurisdiction which GAO already has.

• **Another safeguard**—A section of the bill would prohibit insertion in a government contract of a provision making final decisions of contracting officers on questions of law and would also ban the indirect insertion of such provisions by incorporation as references. This will prevent the use of what is commonly known as the "all disputes clause," whereby finality of decision is given as to questions of both fact and law. This provision also will prevent the insertion of such a clause in any drawings, plans, specifications, or any other documents which might be incorporated by reference in the contract itself.

The law does not create any new rights for the contractor that he did not possess prior to the Wunderlich decision. At that time, the Supreme Court was aware of the rigidity of its decision and said: "If the standard of fraud that we adhere to is too limited, that is a matter for Congress.

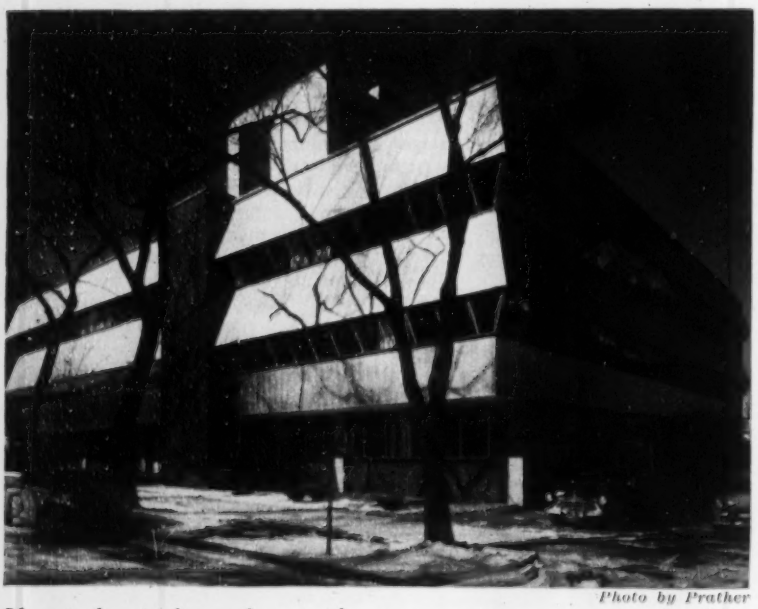


Photo by Prather

Slanted windows keep the sun out

Windows sloped at 31-deg angle in the new $1-million Shell Oil Co. building, Denver, Colo., reflect the sun's glare away from the structure, and aluminum paneling above windows acts as a sun shade. Paneling, supported by the steel frame, has no masonry backing but is insulated with glass fiber, a first in Denver. The elevator tower contains air-conditioning equipment and rises high above the roof so that two more floors may be added to the building at any time. James S. Sudler was the architect, and Swinerton & Walberg were the contractors, both of Denver.

Jobs in the news

POWER PLANT—Contract to construct the first two units of a thermal electric power plant, at La Guaira, Caracas, Venezuela, for the C. A. La Electricadad de Caracas has been awarded to the Kuljian Corp., Philadelphia, Pa. Estimated cost of the two units: $15 million. When completed the plant will have cost about $45 million.

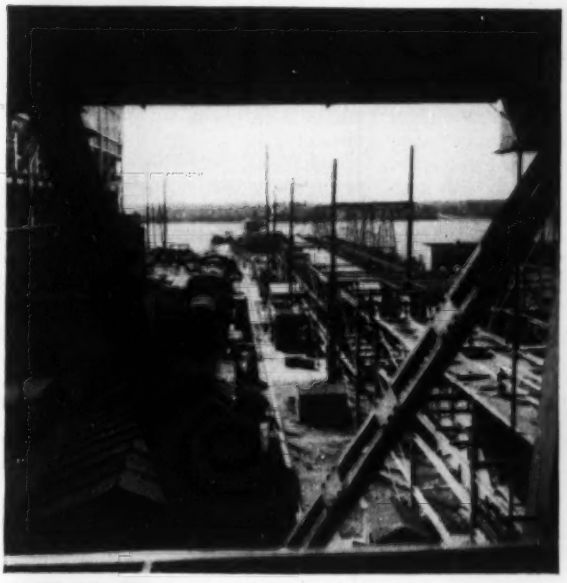
CIGARETTE PLANT—Construction of a cigarette plant and tobacco research laboratory at Greensboro, N. C., for the P. Lorillard Co., has been awarded to H. L. Coble Construction Co., Greensboro. Estimated cost is $13 million.

COMMUNITY—Garden apartments, shopping center and sewage treatment plant at Fairfax, Va., will be built at an estimated $20 million by the Morell Construction Co., Alexandria, Va., for Rose Hill, Inc., Alexandria.

SUBURBS—Hotel, four shopping centers, a 900-unit apartment, and 350 residences north of Kansas City, Mo., will be built by the J. E. Dunn Construction Co., Kansas City, for the firm itself and James A. Bruening, Kansas City, at an estimated $20 million.

HYDRO PROJECT—The $5-million Rainbow Falls hydro dam and power house on the Raquette River, St. Lawrence County, N. Y., will be built by the Raquette River Construction Corp., Potsdam, N. Y., for the Niagara Mohawk Power Corp., New York.

PHARMACEUTICAL PLANT—A $5-million addition to a pharmaceutical plant, West Chester, Pa., will be built by the George A. Fuller Co., New York City, for Wyeth International Ltd., Philadelphia. Skidmore, Owings & Merrill, New York, are architects.



AT STAKE—Power from this row of outdoor turbo-generators was basic issue in years of labor turmoil at Joppa, Ill.

SAND RUNNING OUT?—Evan Dale, one of two union business agents indicted on $1-million-plus shakedown charge.

Federal jury prices labor peace insurance

At the time that Electric Energy, Inc., brought in a new contractor last summer to finish its steam power plant at Joppa, Ill.,—then a year behind schedule—there was plenty of talk about shakedown attempts by a handful of labor union officials who supplied workmen for the job.

The original contractor, in fact, hinted (ENR Aug. 13, 1953, p. 21) that interested parties might well look into the so-called "Illinois Plan," a system for allegedly levying tribute on contractors working in southern Illinois for 1% of the total value of their contracts—as insurance against strikes.

ENR, looking into the labor troubles at Joppa, Ill., (ENR Nov. 19, 1953, p. 21) found no shortage of suspicions that such a shakedown had been practiced.

A federal grand jury, sitting in East St. Louis, Ill., found no shortage of witnesses with similar suspicions. Last week, the jury indicted Evan Dale on charges of trying to extort just over $1 million from Ebasco and EEI as the price of maintaining good labor relations at Joppa.

Dale is president of the Southern Illinois District Council of the Laborers and Hodcarriers Union (AFL), and head man of a four-local pool established by the laborers' international union to supply workers to the Joppa job, the TVA plant and Paducah atomic project.

Named with Dale in the indictments—thought to be the first of several—was James Bateman, business agent of a pipefitters' local in southern Illinois, an old friend of Dale's. There were other charges against Dale, too, charges that he extorted $10,500 from road contractors in Illinois, and that he took $7,500 from a vice-president of Maxon Construction Co., Dayton, Ohio, a subcontractor at Joppa.

Such charges are not new to Dale. He has been under indictment for nearly a year on another shakedown charge.

And just last month Dale was given a bill for $209,121 in federal income taxes for 1947-52.

Thumbnail sketch of a power-gatherer

Evan Dale has been a labor organizer since his youth. His past is that of a man who extracts power from any situation not already under someone else's control. When big projects came to southern Illinois, Dale expanded his influence.

Southern Illinois and western Kentucky have had a stormy history of labor development, and it is not surprising to find men like Evan Dale rising to influence in the turmoil and tension of "crash" projects that would strain even the more sophisticated labor forces of, say, New York or Chicago.

Dale is about 38 years old, and weighs around 240 pounds. Married at 15, he has numerous grandchildren. He's a political power in Illinois, and in 1952 was consultant to the labor division of the Republican National Committee. He has made his headquarters at Carbondale, Ill., in the coal fields, and many an unemployed miner has been put to work through Dale's four-local laborers' pool.

DALE SIGNS CHECKS on Cadillac hood at hunting hideaway as secretary watches.

Picketing

It's illegal in Denver case, NLRB decides

Picketing by Denver AFL carpenters to force non-union construction workers to join a union has been ruled an unfair labor practice by the National Labor Relations Board.

The 3-1 decision climaxed a year-long controversy during which a Colorado state court, a federal district court and an NLRB trial examiner had sustained the carpenters. The carpenters union said they are "considering" carrying the issue to the U. S. Circuit Court of Appeals.

The NLRB also held that the wording on the picket signs was an unfair labor practice because "it does not clearly indicate that" only the primary contractor was being picketed.

This resulted, the NLRB said, in workers for the plumbing and roofing subcontractors leaving the job. That was interpreted by the NLRB majority as an attempt by the carpenters to become the bargaining representative of the primary contractor's workers "through economic pressure exerted on . . . subcontractors, neutral employers." That was termed by the NLRB a violation of the Taft-Hartley Act.

In his dissent, NLRB member Abe Murdock said the majority was holding for the first time since 1947 that it is not sufficient that a union defend itself from secondary boycott charges on the ground that its picketing in time, place and nature was directed against a primary employer."

Chairman Guy Farmer, members Ivar H. Peterson and Philip Ray Rodgers answered Murdock ". . . we are deciding only that the general counsel establishes a violation in this type of case by showing either that a union picketed with a sign whose legend, by itself, indicates that the picketing was directed beyond the primary employer, or, that it picketed with a sign which, when viewed in the context or probative union statements, whether lawful or not in themselves, demonstrated that the picketing was directed beyond the primary employer."

The majority added that ". . . we are holding that a union violates the law where it pickets an employer to enforce a demand for an unlawful union-security arrangement . . . we base our conclusion that the union demanded an unlawful union-security arrangement upon the fact that the union's proposed contract contained a provision that would have prohibited the employer from using nonunion workers alongside union workers. . . ."

The Carpenters' District Council of Denver set up a picket line April 1, 1953, at a private housing construction project started by Professional and Businessmen's Life Insurance Co., acting as its own primary contractor. The $1.4-million project for constructing 105 homes now is complete except for five homes.

Picketing was interrupted April 3 when PBM obtained a temporary restraining order in Denver District Court but picketing resumed April 27, 1953, when the court denied a permanent injunction. A request by PBM for a federal district court injunction was denied June 26, 1953.

The pickets carried a sign bearing the legend, "Working conditions on this job unfair to Carpenters' District Council."

The NLRB majority said ". . . the fact that the picketing was at the project using carpenters did not make clear that the picketing was not directed beyond PBM. Rather, we are of the opinion that the words in the sign . . . 'this job' refers to the project as a whole, and that the employees of the neutral subcontractors at work on the PBM project at the time of the picketing reasonably could understand from the sign that the subcontractors as well as PBM were being picketed."

• **In Canada too**—The Ontario Labor Relations Board has declared that a carpenters' local in Niagara Falls (AFL) engaged in an illegal strike by placing "unfair to labor" signs on a construction project. Both labor members on the board dissented.

In evidence before the labor board, the carpenters' union claimed Smith Bros. Construction Co. refused to pay union wages while building an addition to the Bank of Montreal office in Niagara Falls, Ont. The company previously had paid union wages, but had refused to sign a formal agreement with the union, the carpenters said.

In order to determine how many workers on the job were union members, the carpenters said they placed the signs in front of the bank. Work stopped when a foreman quit and carpenters refused to pass the signs.

No T-H changes foreseen as Congress starts debate

President Eisenhower's program for moderate changes in the Taft-Hartley Act seems doomed to defeat. If Congress passes a new labor-management law—which is unlikely—it will contain some tight restrictions on union activity that the White House did not ask for.

This became clear as the Senate moved into debate this week on dozens of T-H changes. While the discussion centered on the President's middle-road proposals (about half favor labor, half management), some legislators insisted on putting in amendments drastically opposed by union officials.

The key to success or failure of a new labor bill hinged on one key proposal—to give the states equal authority with the federal law to control strikes, picketing, boycotts and other union activities. Conservative Republicans and southern Democrats are backing this proposition to the hilt despite administration efforts to keep it out of any new bill.

Labor Secretary Mitchell actively opposes this states rights measure and will attempt to persuade the President to veto any bill that includes it. He believes it would lead to "chaos" between labor and management if the individual states are empowered to deal with unions through their own laws. While state laws could not contain tighter restrictions on labor than the federal Taft-Hartley Act, different interpretations could lead to a set of different rules within each state.

Congressmen supporting this measure may have enough votes to put it through. If the Senate goes for it, the House—which is holding off action until the Senate finishes—may approve a similar bill. This would put the Administration in a tough spot since it is committed to a states rights philosophy in general but not to the extent of supporting this measure. Would the President sign this sort of bill, or would he veto it?

Pay pattern in Ohio

Ten cents an hour. That's the pay increase which ended a general construction trades strike in the Columbus, Ohio, region last week.

The strike—which lasted a month—ended formally when the carpenters' union joined lathers, plasterers, cement masons, painters, teamsters and laborers in accepting the 10-cent-an-hour pay rise.

Brick masons and iron workers agreed to remain on the job while negotiations for renewal of their contracts—which expired May 1—continued. The 10-cent increase figure has been appearing often nationwide as employment in the building trades picks up (ENR Apr. 29, p. 29).

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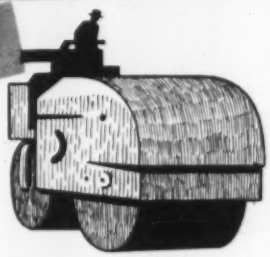

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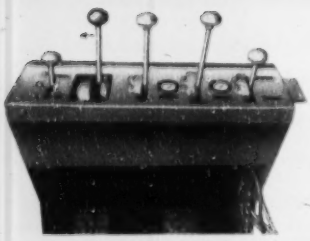

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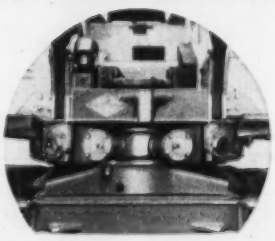

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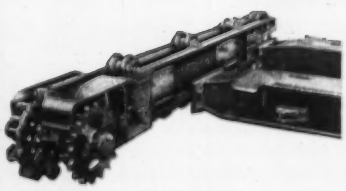

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The new LIMA Type 703-SC is designed to give you unequalled crane performance for tough lifting jobs. Each part is engineered to meet the most rigorous operating requirements.

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TANK TOPPER

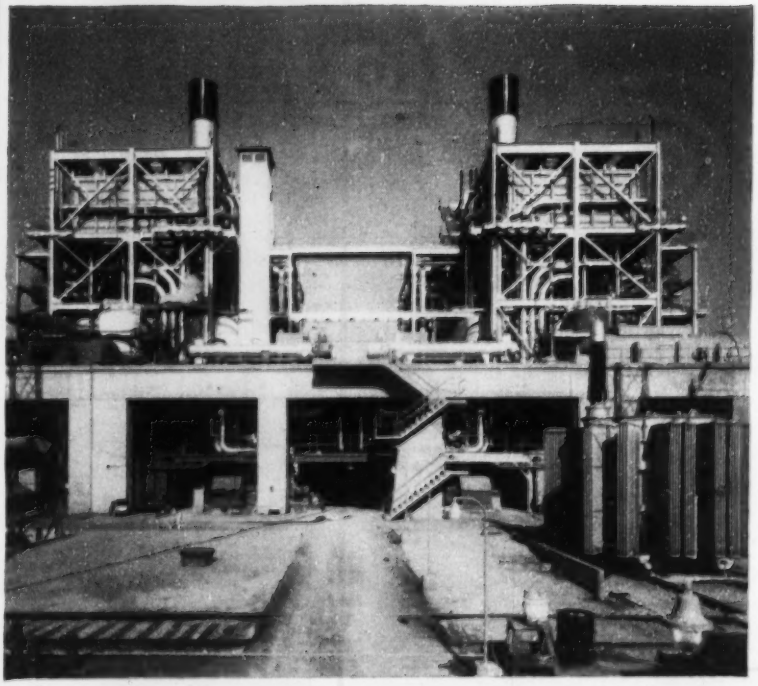
Two truck cranes, each equipped with a 120-ft boom, work closely together to "put a head" on a new 100-ft water tower for the village of Kaleva, Mich.

Village fathers recently purchased the 55,000-gal tank from the Chesapeake and Ohio Railroad. Then they had to move the 13-ton load off a 27-ft tower on which it had stood for some years; truck the tank 900 ft to the new site, and hoist it. Erickson Trucking Co. of North Muskegon did the job.

OUTDOOR POWER

What Southern California Edison Co. claims is the most "all outdoors" thermal power station in the Los Angeles area is its new $35-million Etiwanda plant.

The station is the last of four installations recently built by the company, and will produce 250,000 kw. Boilers, turbines, generators and heaters stand on steel and concrete platforms open to the sky; other equipment is protected merely by an overhead concrete deck. Only the administration building, central control room and a few other areas are enclosed or shielded.



United Press photo

SHIP LIFTER

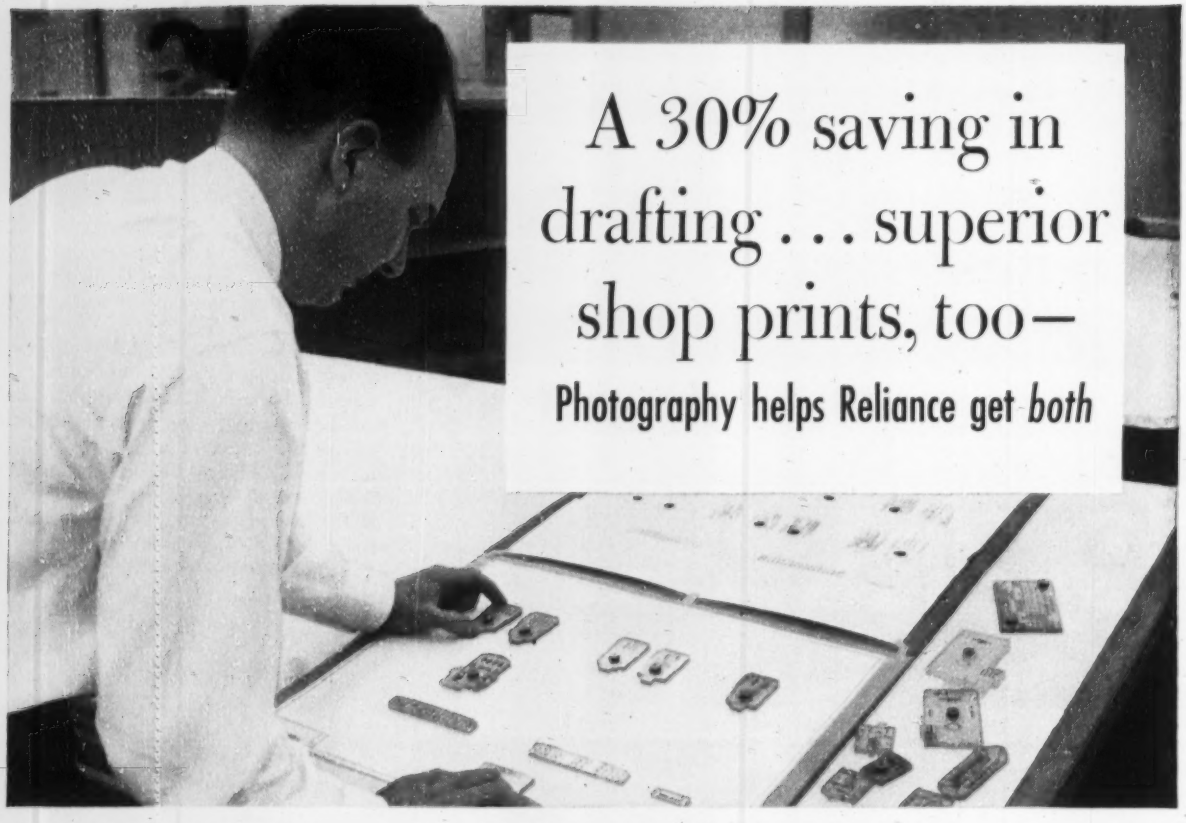
The Army's Transportation Corps has to move some odd vehicles—including disabled small water craft.

An easy way to handle the problem is a new portable dock (left) demonstrated recently at Seattle. Labeled officially as a portable marine railway, the "dock" is a framework mounted on four 9-ft by 6 in. wheels that can be run down into shallow water. Disabled small craft (such as the infantry landing craft shown) can be guided into the "dock's" tracks, and the whole assembly pulled ashore for repairs. Dock can carry up to 75 tons.

SAFE STABLE

Running horses—not injured ones—is a prime objective of the Metropolitan Jockey Club (Jamaica race track, New York)—so it called in Stone & Webster Engineering Corp. to design new, fireproof stables.

An experimental model (right) eliminates all wood construction (except plywood lining wainscots and duckboards—all treated, however, with fire retardant chemicals); automatic sprinklers in each stall, runway and loft; a two-peaked, ventilated, high roof; elaborate fire alarm systems.



A 30% saving in drafting . . . superior shop prints, too—

Photography helps Reliance get *both*

At the Reliance Electric & Engineering Co., Cleveland, Ohio, the use of photographic templates and Kodagraph Autopositive Paper has helped to lower drafting-room costs by at least 30%, besides assuring highly legible shop prints day in and day out.

The templates—on clear plastic—represent the designs of standard components that appear again and again in Reliance's many wiring diagrams. A draftsman uses them, first, to make a preliminary drawing – positioning the templates he needs on whiteprint paper, making a print, then roughing in the hook-up lines.

After this drawing has been approved, he prints the templates on Kodagraph Autopositive Paper, using a printing frame. Simple photographic processing—under normal roomlight—produces a positive print of the layout directly. All he has to do now is add the hook-up lines, and another drawing is ready for Reliance's file of photo-lasting Autopositive "originals." *Another saving can be chalked up!*

Reliance has found these photo-drawings to be ideal printing intermediates. They're evenly translucent, durable; have crisp, dense black lines. And they produce top-quality shop prints at practical, uniform speeds in Reliance's direct-process machine.

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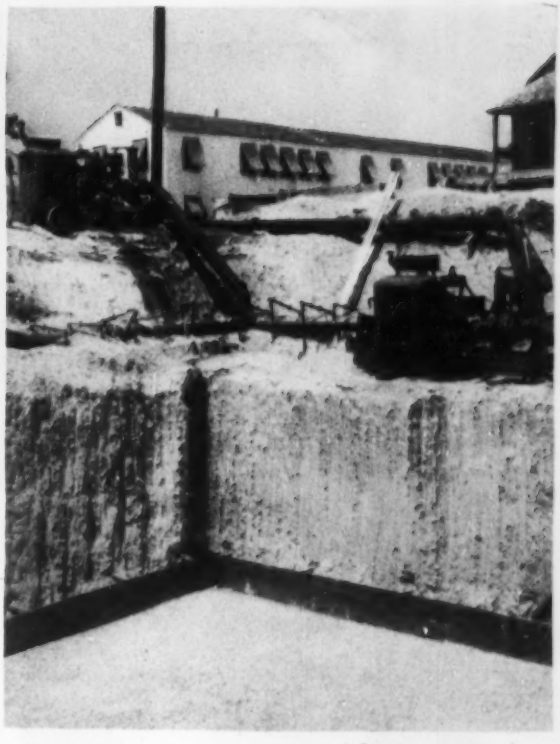
OPEN PUMPING dewaters cut 7 ft below surface, so 22-ft deep excavation can be kept dry with single-stage wellpoints. Header is installed and drill maneuvers to make holes for wellpoints.



STANDBY PUMP at surface operates wellpoints if hurricane forces pit-flooding as a safety measure. Regular pump is alongside header. Forms are in place for floor slab 22 ft below surface.

Wellpoints master oölite

E. Day Wood, Jr.
Moretrench Corp.
Tampa, Fla.

For a long time designers have shied away from deep excavations in Key West, Fla. Ground water is close to the surface, and the formation is an oölitic limestone (oölite) that was thought to require an expensive tremie-sealed cofferdam for cuts of substantial depth. The oölite was considered by many to be "unsuitable for wellpointing," which would have made possible the economies of dry open excavation.

This pessimism existed before the city decided it had to expand its sewerage system — an expansion that required sewage lift stations with foundation slabs as deep as 22 ft below the surface.

Events soon proved that wellpoints could, in fact, dewater the oölite.

But first, "What is oölite?"

Oölite is defined by Webster as "A rock consisting of small round grains, resembling the roe of fish, cemented together." The grains (oöliths) are accretionary bodies of calcium carbonate, chamosite or dolomite, usually concentric-layered around a nucleus such as a quartz grain.

The oölite at Key West is a soft, white rock composed mostly of calcium carbonate. Irregular layers of calcite seem to form a skeleton framework resembling coral formations. At the first lift station, oölite cementation was irregular, forming pockets or layers of pervious and impervious mixtures.

These facts were determined by the writer's firm when the lift-station general contractor, Powell Bros. Construction Co., of Fort Lauderdale, Fla., asked for an opinion on the feasibility of wellpoint dewatering.

We concluded that wellpoints would do the job.

The first lift station was to be 40 ft square, with its foundation slab resting 22 ft below the surface. Ground water was 2 ft below the surface, but it was decided that open pumping could keep the hole dry down to 7 ft, permitting full dewatering with one wellpoint lift.

The wellpoint header was placed around the bottom of the 7-ft-deep cut, and wellpoints were placed in 6-in. holes bored by a rig on small pickup truck. Drilling was chosen instead of punching with a ram because the latter would have shattered and fractured the limestone. Drilling left oölitic particles in the rock pores, holding down the amount of water to be removed.

Even with the drilled holes the danger of screen-clogging by oölites was a critical factor. It was avoided by regulation of the approach velocity of the water entering the wellpoint screen—a function of wellpoint spacing, wellpoint size and pumping volume.

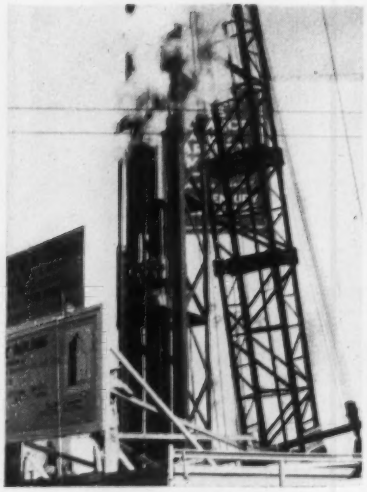
Wellpoints were spaced at 3 ft. Pumping from the header was handled by two 8-in. 75-hp diesel-powered pumps, one at header level and one at the surface. In normal operation the lower pump did the work. The upper one was kept hooked up in case it became necessary to flood the excavation as a safety measure during a hurricane. In this event the lower pump would be inoperative during the first stage of subsequent dewatering.

Once the wellpoint system was installed it took only six hours to lower the static water level 11 ft below the header. The contractor was able to start excavating with no danger of a bottom blow-in or side crumbling because of unrelieved pressure.

During excavation, water trapped by impervious layers was handled by local surface pumping. The cut was dug about 8 in. below grade, and a layer of gravel was placed, to act as a drain for the almost daily heavy tropical showers, as well as a leveling course for setting forms and tying steel.

Management—The project was designed for Key West by Clifford-Cooper & Associates, Miami Springs, Fla.; resident engineer was Mike Potter. For Powell Bros., Burgess Rand was job superintendent and Hugh Landford was general superintendent. Wellpoint work was supervised by Jerry Johnson, of Moretrench Corp., Tampa, Fla.

TOWERING LEADS handle long piles on a new San Francisco office building. The 144-ft long leads tower 152 ft above ground level. Average length of 14-in. H-piles is 130 ft.



HEAVY HAMMER was needed to drive piles through hardpan stratum.

PILE TIPS were reinforced by 8x10x½-in. flange plates for driving purposes.

Heaviest hammer drives long piles

It took the heaviest pile hammer ever built to drive piles for a new San Francisco building. The specially fabricated single-acting unit has a 17,500-lb ram traveling 40 in. and developing more than 58,000 ft-lb of energy.

More than 400 H-piles (14 in., 102 lb) averaging 130 ft in length were driven to support a 26-story office building under construction for the Equitable Life Assurance Society of the U. S. Piledriving work was completed late in April.

A primary consideration in the building design was restriction of settlement. And long end-bearing piles were needed to meet the rigid settlement required.

The structure is situated in the heart of San Francisco's financial district, where only 100 years ago bay waters lapped the foot of a hill. Rock lies 125 ft below graded surface. And the intervening material will not support friction piles without excessive settlement. The first 80 ft or so is a silty sand formation, loose near the surface, and the last 30 or 40 ft is soft organic clay. But in between the sand and the clay is a 10 to 15-ft layer of hardpan. This stratum could support a lesser building, but it had to be pierced in favor of bedrock for this assignment. Such a penetration could be gotten most efficiently with the heaviest hammer ever fabricated.

The pile hammer is designated a Raymond No. 00000. The heavy cast iron ram has a steel face pressed into it. Size of the hammer is limited by the strength of the piles. The 17,500-lb ram stresses the piles to 40,000 psi.

Except for the hammer proper the driving rig is standard equipment. The leads are 144 ft high, making the unit the largest land rig on the West Coast. (Raymond has a rig with 192-ft leads at work on a powerhouse in Muskegon, Mich.)

The large hammer operates at a 50-blow per minute rate. In driving through the hardpan layer driving rate is usually about 100 blows per foot. Final rate in driving into the rock formation is 30 blows per inch.

During the course of the driving work, a test was run to see if a lighter, double-acting hammer would drive the piles more efficiently than the heavy single-acting unit. A unit rated at 36,000 ft-lb for 103 blows a minute was tested on one pile. It drove the pile satisfactorily; but no more so than the single-acting unit that was already on the job. The engineer concluded that for conditions at the site the heavy hammer would drive the piles with less energy expended.

The new building was designed by the late W. D. Peugh, San Francisco architect. Structural engineer is F. W. Kellberg. Foundations were designed by Charles H. Lee, consulting engineer, who also directed the subsurface investigation work and had charge of inspection of pile driving.

Prime contractor for the building construction is Dinwiddie Construction Co. Piledriving contractor on the work is Raymond Concrete Pile Co. The big hammer was designed by the Raymond staff in New York and assembled in the Oakland yard. Boyd Beggs is project superintendent for Raymond, C. R. Graff is district manager and Carl Cramer is district superintendent.

"Not a single high spot or tough digging in the entire ditch"

The Missouri Dredging Company of St. Louis, Missouri, can chalk up another successful river crossing with Atlas Explosives on the job.

This crossing of the Tennessee River near Hamburg, Tennessee, was made for the Gulf Interstate Gas Company of Houston, Texas. The job called for two crossings, 50 feet apart at a point where the river was 1200 feet wide.

The crossing was shot in four stages, and when dredging was completed, the Missouri Dredging Company reported that there was not a single high spot or any tough digging in the entire ditch.

On any river crossing, selection of the right explosives and blasting methods will result in an economical job. Atlas specialists have had years of experience in river crossings and rock ditching and are always ready to work with you on your blasting problems.

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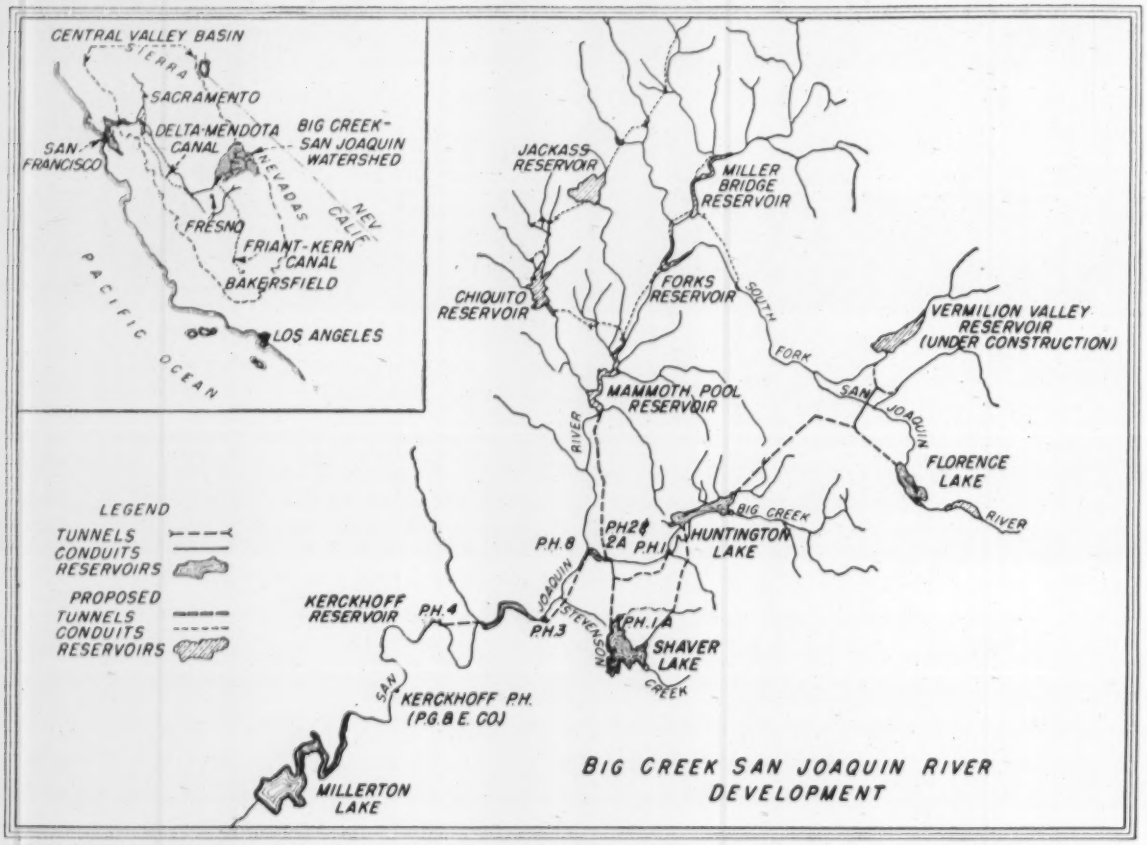


SOUTHERN CALIFORNIA EDISON PROJECT begun more than 40 years ago is still growing, with multiple effect.

Private power byproduct: Free public benefits

Big Creek development in California has furnished substantial irrigation, flood control and recreation benefits at no additional cost to power user or public

W. L. Chadwick
Vice-president in charge of engineering and construction
Southern California Edison Co.
Los Angeles, Calif.

(Based on a paper presented by Mr. Chadwick before the American Power Conference in Chicago last month.)

Frequently we hear appeals made to the voter alleging "give away" of the public inheritance in water resources to private interests for private profit. Such charges are not only untrue, but the public benefits more than anyone else from hydroelectric power development by private capital. This can be shown by experience with the Big Creek-San Joaquin project of the Southern California Edison Co.

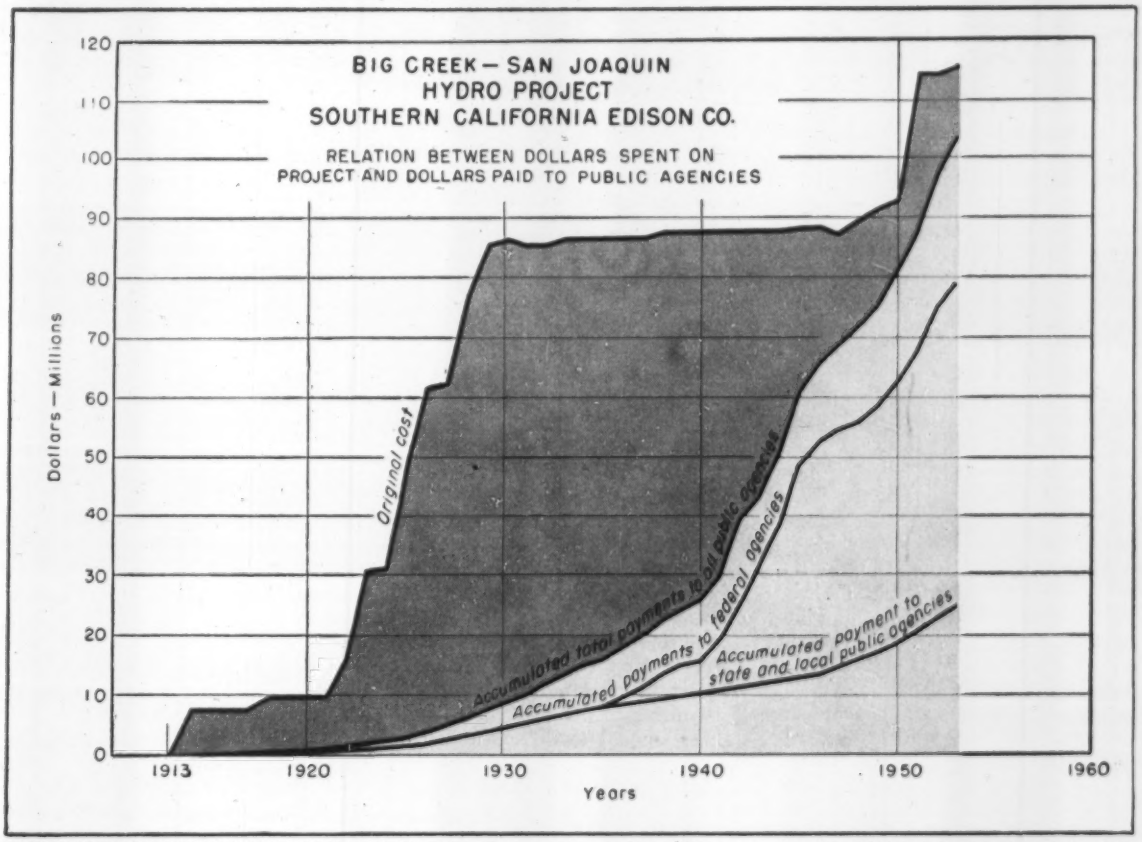
This project was begun more than forty years ago, has been periodically enlarged and is currently being added to by the construction of Vermilion Valley dam and reservoir. From the very beginning, the project has joined the multiple uses of irrigation, hydropower, flood control and public recreation. No charges have ever been imposed for any of these services except power. And with power rates no higher than for competitive fuel-generated power the project has returned a reasonable profit while also paying the public the equivalent of 4½% on the private investment without any public investment whatever. It is the purpose of this article to present the facts in support of this statement.

• **Project described**—The Big Creek-San Joaquin River watershed is shown on the map as on the east edge of California's Central Valley. Its area is 1,292 sq mi, and in a year of average rainfall it has a 1,613,000 acre-ft runoff—an average of 1,249 acre-ft per sq. mi.

To date development of the watershed is confined to the San Joaquin's South Fork and to the tributary Big Creek. By a system of dams, tunnels and short pipelines, water of South Fork is diverted to Big Creek where steep terrain can be utilized with least length of conduit; then, downstream below the confluence of Big Creek and the main river, there are three additional power plants, two belonging to Southern California Edison Co.

Reservoirs now in the system are: Florence Lake (64,400 acre-ft) formed by a long multiple arch dam on South Fork at about El. 7,300; Huntington Lake (89,000 acre-ft) is behind four concrete gravity dams at El 6,950 on Big Creek, supplying regulation and a forebay for the first power drop; Huntington Lake water is also diverted in part to Shaver Lake behind a single concrete dam on Stevenson Creek. Total head through which the South Fork and Big Creek water is used is 6,313 ft.

• **Electrical output**—Total capacity in the six Edison plants of the system is 530,000 kw. In an average water-year, the production from the existing plants is about 2.8 billion kwh, which compares with average production at Hoover Dam of about 5.4 billion kwh. Average energy production from the South Fork and Big Creek water through the main power plant chain



PRIVATE INVESTMENT PAYS PUBLIC WELL. Company has paid public a sum totaling 90% of its investment to date.

is 4,625 kwh per acre-ft, making it surely the hardest-working water on earth.

Relation of the Big Creek-San Joaquin project to the remainder of the Southern California Edison Co. system is this: It provides 26% of the total system capacity; Hoover Dam supplies about 21%; other sources, principally steam generation, about 53%. Currently, in an average water-year, about 33% of the energy transmitted over the company's system comes from its own hydro sources, principally from the Big Creek-San Joaquin plants; 12% from the Hoover Dam project; and 55% from steam plants and a small amount of purchased energy.

• **History**—Construction of the Big Creek-San Joaquin project began in 1911. By late 1913, 64,000 kw were in operation in two plants. The most active development, however, occurred after the passage of the Federal Power Act in 1920. By 1930, a total of 396,000 kw had been developed. The last plant, called Big Creek No. 4, was placed in service in June, 1951, with 91,000 kw.—and an additional unit was added to Big Creek No. 3 in 1948 to make the combined total for the project 530,000 kw.

As noted above, an additional 125,000-acre-ft reservoir is under construction. An application is now before the Federal Power Commission for license to develop 126,000 kw in the Mammoth Pool section of the main river. Negotiations for a contract to permit use of the water in that project are now in progress. There are additional prospective developments up river which will aggregate about 230,000 kw.

• **Benefits to public**—Although the Big Creek-San Joaquin project has many interesting engineering features (see box) it also affords a yardstick for the revenues and other benefits, over and above light and power, which the public receives without public cost. Total original cost of the project, excluding the related transmission lines to Los Angeles, is $115,663,000,

(Continued on page 40)

Features of Big Creek-San Joaquin project

(1) Total continuous head developed is among highest in the world, 6,313 ft.

(2) Storage is especially essential, because as much as 75% of the total annual flow occurs between April 15 and July 15, and ground storage is minimum because of the shallow alluvium generally present. All major storage is at high elevations where it benefits all the plants below.

(3) Maximum use is made of unlined rock tunnels for conduits, thereby shortening conduit distances and minimizing maintenance and weather-caused outages. There are 35.7 miles of tunnel used in the project, ranging from 7 to 24 ft in diameter and up to 13 miles in length.

(4) Penstock construction varies widely from flanged and bolted forged-welded pipelines serving individual units in the original plants, through fully riveted construction, to the all-electric-welded single 15-ft diameter line serving two units in the latest plant. One line in 1927 and 1928 to serve the 96,000-kw Big Creek 2A plant used roughly 2,000 tons of fully riveted, 2,000 tons of banded, and 2,000 tons of forged and bored seamless pipe for the 2,418-ft head; this is one of the highest heads used in the U. S.

(5) Reaction type wheels of unusually high heads, for the time of construction, were used in Big Creek #8 (730 ft in 1920) and Big Creek #8 (831 ft in 1923).

(6) The project was the first to use both 150-kv and 220-kv transmission. The first two lines to Los Angeles were built originally (1913) for 150 kv, but were raised in 1923 to 220 kv.

Project features were built to meet the competitive cost of fuel-generated energy.

all of which is, of course, borne by power. There are no credits available from irrigation flood control, fish and wild life, etc.

Prior to construction of Millerton Lake reservoir by the U. S. Bureau of Reclamation, the regulation provided by the Big Creek-San Joaquin project reservoirs made available to the irrigators downstream in an average year about 70,000 acre-ft of floodwaters which otherwise would waste to the ocean. To irrigators who do not have supplemental pumps, this water comes at a time when it is crucial to successful crop development. The Vermilion Valley reservoir, when added to the system in 1955, will increase this benefit to 120,000 acre-ft in dry years, and to 80,000 acre-ft in an average water year. Construction of Millerton reservoir has provided additional regulation.

The contracts under which the power projects operate require release of stored waters within specified periods, and do not permit retention of stored water beyond certain dates unless agreeable to the irrigators. Each of the prospective developments on the upper river will add to these benefits to the irrigator at no cost to him.

The present project reservoirs provide more than 200,000 acre-ft of storage to check spring floods. Each prospective additional development upstream will add to these flood control benefits again free to the public.

The project also has made available to the general public for recreational use four large fish-bearing lakes, with another currently being built. More are in prospect. Agreements are in effect with fish & game authorities to assure water for fish maintenance below all diversions. These projects also have provided the general public with 110 miles of roads into forested mountain areas which otherwise would be accessible only to the more hardy. In addition, 20 miles of other roads are available to the U. S. Forest Service for use in the control of fires in the public domain.

Roads which have been built as project features, subsequently turned over to the public without cost, have put about 500 sq mi of public domain within a few hours walking distance for the general public, and well over 1,000 sq mi within a one day horseback trip from road points. This latter is about equivalent to the area of Yosemite National Park. These roads have also afforded access to many millions of board-feet of public timber.

• **Public gets dollars, too**—The chart shows accumulated investment in the project from its start to date (exclusive of transmission lines); separately it shows the accumulated payments, because of the project, to all public agencies, local and federal.

Local payments, for city, county, school district, and state taxes, to the end of 1953 had aggregated $24,715,000, or 22% of the original cost of the development.

Payments to federal agencies include those for the use of public lands under the Federal Power Act and other legislation, an allocated share of excise taxes on the sale of electricity, and a proportionate share of federal income taxes (based on the proportion of kwh generated by the project to the total for the system). The aggregate of these federal payments over the project's history is $78,875,000, or 68% of the original cost.

Combined payments to all public agencies aggregate in round numbers $103,590,000, or 90% of the original cost of the project. In fact, at the rates in effect during the years 1946 through 1953 inclusive, the annual average total payment was $5,409,000.

Put it another way, this rate of payment, if continued, would result in payments to public agencies totaling the amount of the entire cost of the project each 21 years. Expressed on the basis of the usual measure of merit for an investment, the public then would show infinite investment yield, with $115,663,000 income each 21 years, and no capital paid in. Stated still another way, during the year 1953 the total payments to the public alone (that is, exclusive of operation and maintenance, money cost, depreciation or other cost) amounted to $23.45 per kw year. System-wide, the total payments to the public during 1953 aggregated almost 4 mills per kwh sold.

• **Added up**—It can be shown that this one project, although built entirely at private cost, has produced, for the public:

(1) Irrigation water amounting to 70,000 acre-ft in an average water year and, upon completion of construction now in progress, 120,000 acre-ft of new water in a drought year. (This water is supplied to some of the nation's most productive lands.)

(2) Flood control storage of about 200,000 acre-ft.

(3) Four large playground lakes—five in another year.

(4) Access to a playground of more than 1,000 sq mi.

(5) 63,174,000,000 kwh at prices which have been regulated continuously by government agencies.

(6) Revenues to date, aggregating $103,590,000 and a continuing annual revenue of more than $5,000,000.

From these facts, can it be shown that anyone profits more from hydroelectric power development under the Federal Power Act than the public itself? The answer seems obvious.

Further, the foregoing shows:

(1) That private enterprise can and will develop multi-million dollar, multi-purpose projects where they are economically sound;

(2) That it does so through cooperation with the Federal Power Commission, the Department of the Interior, and with the various water resources and wild life agencies; and

(3) That, when the project is economic, that is, when it is competitive with fuel-generated power, it can make a reasonable profit while also paying to the public the equivalent of 4½% on the private investment without any public investment whatever.

Good news in heavy Northwest snowpack

Columbia Basin water supplies for irrigation and power during the summer season ahead vary from excellent for most of the Pacific Northwest drainage area to unusually low in the southern edge of the Snake River drainage in Idaho and Oregon. April 1 snow surveys of the snowpack throughout the entire upper Columbia show well above average water content, and some courses—on the Upper Columbia, Kootenai and Bitterroot basins—hold snow water greater for this time of year that has ever been recorded. New snow on the upper reaches of the basin fell after the April 1 surveys and added to the already record supply.

Data were released in a joint statement issued by the U. S. Weather Bureau River Forecast center in Portland and the Soil Conservation Service's Columbia Basin Snow Survey.

The joint report said, in summary: "The snow cover in general is heavier than in 1948 (a summer of disastrous floods in the entire Columbia Basin). However, it is only remotely possible to have a re-occurrence of the late snow melt and spring rains of 1948 which produced record peak flows. The greatest flood potential in the Columbia Basin exists in the Kootenai, parts of the east slope Cascade basins, and the lower reaches of the Columbia. If normal spring conditions prevail, the Kootenai River as measured at Leonia, Idaho, is expected to peak at 100,000 cfs which would result in a stage near 35 ft at Bonners Ferry, Idaho. Other peak flow estimates: Columbia River at Trinidad—550,000 cfs or stage of near 54.5 ft; Columbia at The Dalles, Ore., forecast is 760,000 cfs.

There is a difference in return bends—

Making a seamless return bend is no simple task. Holding it to the unvarying accuracy and metallurgical uniformity found in 180° WeldELLS® is a feat that could be accomplished only by the organization that pioneered the seamless return bend and perfected it through a quarter century of specialization.

Every WeldELL return bend gives you exactly what you ordered: true roundness, accurate size, full pipe thickness from end to end . . . controlled quality all the way through. No fitting tells the WeldELL story better than the return bend. There IS a difference!

And there IS a difference in *all* Taylor Forge Welding Fittings. It is a difference that is particularly important now that fittings made to low standards have come into the market. Today the best way to be sure you are getting welding fittings of highest quality, conforming to all codes and standards, is to specify Taylor Forge WeldELLS.

WeldELLS—the *first* complete line—is still the *most* complete line, in range of types, sizes, weights, materials. For up-to-the-minute facts see your Taylor Forge Distributor.

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TAYLOR FORGE & PIPE WORKS, General Offices and Works: P.O. Box 485, Chicago 90, Ill.

Offices in all principal cities. Plants at: Carnegie, Pa.; Fontana, Calif.; Gary, Ind.; Hamilton, Ont., Canada

We torture truck axles to

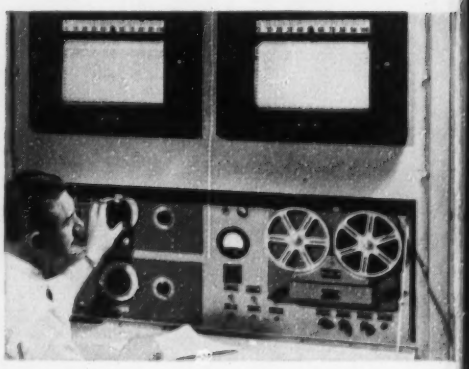
in the new Timken-Detroit indoor proving ground ...and only Timken has it!

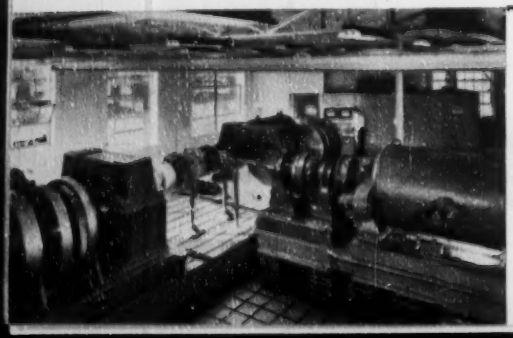
We shock-load, abuse, and torture them. Match every conceivable hauling condition. Then add a few brutal tricks of our own!

Why? So you'll know in advance, and *for sure*, that a Timken-Detroit axle can take the punishment it was designed for. More rugged, grueling punishment than any other trailer axle made!

To prove it, we capsuled a multi-thousand acre proving ground into one room. Here our engineers can put 50 years of experience in building axles for trucks, buses and trailers to work—subjecting axles and gearing *indoors*, to any *outdoor* operating condition.

Such exacting research pays off for you in: longer axle life; less maintenance, repairs and downtime; reduced operating expenses. This is why Timken-Detroit axles are preferred by manufacturers and operators everywhere.





How TDA proves axle quality in this "Torture Chamber"

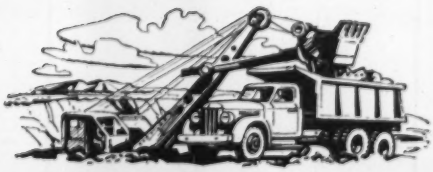
We pick one of our axles at random . . . then duplicate a hauling condition, hour after hour, day after day . . . simulating half a million miles of the toughest driving situations in just a few days. Or "invent" a test like going uphill with a full load from California to New York nonstop. There is no other axle testing like it in the world!

This is our "truck driver." He works in our "Torture Chamber." Above him are graphs showing speed and torque performance under any operating condition he chooses . . . soft ground at full load . . . mountains . . . express highways or side roads. With special dials, recorders and electronic devices, he actually *drives* the axle with scientific accuracy from his chair!

THREE TYPES: Hypoid-helical double-reduction, optional inter-axle differential. Warm drive, without inter-axle differential.

Hauling wet mix? You need Timken-Detroit axles—duplicates of axles that have been given the "works" in our indoor testing laboratory. Simulating the punishment the axle would get hitting a chuck hole with a capacity load every 4 seconds, 24 hours a day, month after month! And it's all done to save you money on maintenance and repairs—make you more money every load.

death



TIMKEN *Detroit* **AXLES**

TIMKEN-DETROIT AXLE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
DETROIT 32, MICHIGAN

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"TORTURE-TESTED"
to Save Money on the Job

WORLD'S LARGEST MANUFACTURERS OF AXLES FOR TRUCKS, BUSES AND TRAILERS

For six-wheeler operation . . . the TDA Tandem Drive Rear Axle Unit

Now—the *lightest weight* tandem drive rear axle unit for heavy-duty motor trucks! And with these features, developed, introduced and pioneered by TDA: (1) Available in 3 types of final drives and 3 capacities. (2) Top-mounted straight-line final drive eliminates propeller shaft angularity. (3) Optional inter-axle differential . . . spur gear design, cab-controlled power-lockout. (4) Torsion flow axle shafts . . . guaranteed for 100,000 miles or three years, whichever occurs first. (5) Hot forged steel axle housing . . . guaranteed for the life of the vehicle. (6) Unit-mounted "P" series power brakes . . . for longer life, greater economy and efficiency. (7) Cradle ride spring suspension and paralleled torque rod system . . . maintain correct alignment and weight distribution regardless of driving and braking conditions. (8) Exclusive two-piece trunnion tube bracket speeds servicing. (9) Removable torque rod and spring guide brackets . . . for positive alignment, easier replacement. (10) Rubber torque rod bushings and rubber spring seat bushings . . . eliminate metal-to-metal contact. Require no lubrication.

Increase axle life with Genuine TDA Equipment Parts

Take no chances with ordinary replacement parts. For sure, dependable factory-type jobs, look to genuine Timken-Detroit axle parts kits—identical to your axles' original equipment.

Each kit is *complete*—gives you everything you need—in one handy package. Gaskets and shim parts, brake liners, steering knuckles, differential gears—for every size of brake and axle. Order by number from your dealer. Cut labor and adjustment costs. Get trucks back on the road quicker!

Plant at: Detroit, Michigan • Oshkosh, Wisconsin • Utica, New York • Ashtabula, Kenton and Newark, Ohio • New Castle, Pennsylvania

YOU GET 3 KEY ADVANTAGES WITH...

FIR PLYWOOD CONCRETE FORMS

1 TIME AND LABOR SAVINGS

Fir plywood forms speed form construction, erection and stripping by up to 25%.

2 SMOOTH CONCRETE

Fir plywood formed concrete is smooth, fin free. Requires less rubbing. Ceilings can be painted direct after a minimum of finishing—eliminating plastering.

3 MAXIMUM RE-USE

Interior PlyForm gives several re-uses, up to 12-15 not unusual...over twice as many re-uses with Exterior PlyForm and overlaid panels. Plan and build forms for long service.

SPECIFY BY DFPA GRADE-TRADEMARKS

These grade-trademarks identify quality panels made expressly for form work. 1. Interior PlyForm (moisture resistant glue) for multiple re-use. 2. Exterior PlyForm (100% waterproof glue) for maximum re-use. 3. Overlaid (hardboard or hard, resin-fiber surface) Exterior plywood for maximum re-use plus smoothest concrete.

PLYFORM

PLYFORM

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Tacoma, Wn.

DFPA GRADE-MARKED
Fir Plywood Industry Product

INTERNATIONAL

Tunnel through

5½-mi-long railroad bore beats schedule by 1 year

Less than three years ago tunnelers began punching a 5½-mi, horseshoe-shaped tunnel through the Rimutaka Mountain range on New Zealand's North Island. On April 20 the job was completed—more than a year ahead of schedule.

These are some of the production peaks that helped upset the timetable. Record work week: 250 ft of tunnel driven and timbered, 208 ft concrete-lined. Best day's driving and timbering: 47 ft. Average day's work: 42 ft.

Only 2,000 ft of the tunnel's arch remains to be lined with concrete, and this work is expected to be finished by the end of May.

The new 15 x 17-ft tunnel replaces a winding, surface stretch of railroad that climbs through the mountains on a maximum grade of 7%. This government-owned-and-operated line was built 75 years ago to link the capital city of Wellington with Featherston, located in the Wairarapa Valley. Ever since then, special engines—equipped with a central driving mechanism that grips a third rail—have been necessary to pull trains up the stiff grade.

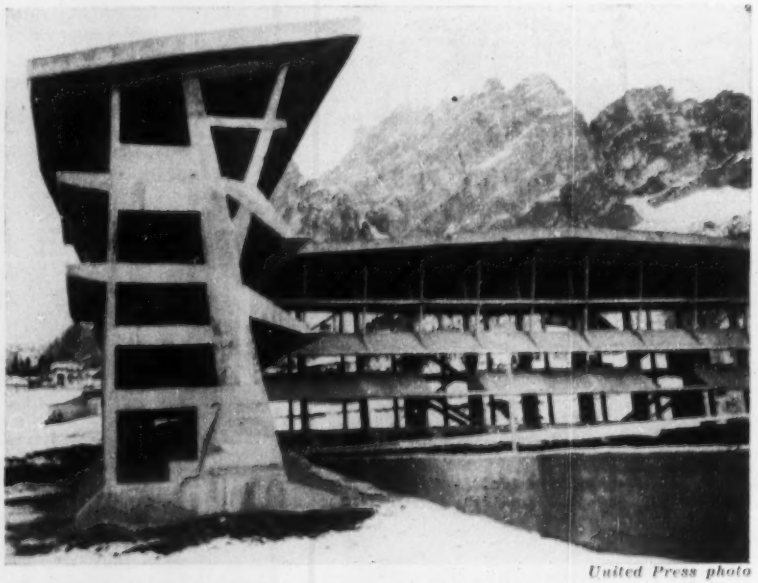
To eliminate this incline—also cutting nine miles and reducing traveling time between the two cities—the Ministry of Public Works proposed the Rimutaka Tunnel Project.

In July, 1951, the new bore was started simultaneously from two portals. One was at Mangaroa, situated in the low foothills about 25 mi northwest of Wellington. The other was at Featherston.

One of the toughest construction problems turned up in the project's early stage. Before hitting good ground—and a fast pace—tunnel workers had to drive through unstable material known as "graywackie". It flowed when wet and was heavy when dry. A small pilot drift had to be driven in advance of the full-sized bore. Once the top heading was driven and braced with 10 x 10-in. timber, the remaining earth was removed for the full-sized bore and timbering was completed. Reinforced concrete rings were poured between the timbers to stop them from shifting.

Morrison-Knudsen Co. of New Zealand, Ltd. (subsidiary of the Boise, Idaho, company) and Downer & Co.,

(Continued on page 46)



United Press photo

Concrete grandstand for '56 winter Olympics

At the foot of icy crags in Cortina D'Ampezzo, Italy, the new Cortina Ice Palace is nearing completion to be in readiness for the 15,000 skating and ice hockey fans expected to attend the winter Olympics there in 1956. At a spot deep in the Dolomite Alps in northeast Italy, the all-reinforced concrete grandstands will surround an ice track to be kept frozen even in the summer months.

RISKY BUSINESS

Carving out the side of a mountain — drilling holes for dynamite blasts *is* hazardous business throughout the world. It calls for skilled workmen, skilled engineers — AND *skilled* insurance protection.

AFIA, the oldest, most experienced and the largest American insurance organization of its kind provides that type of insurance protection — protection that *fits* the job in foreign lands.

Ask your agent or broker to take your foreign insurance problems to AFIA.

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For "an unblemished architectural surface"
Atkinson and Trepte Cos. use

MASONITE CONCRETE FORM PRESDWOOD

Donald M. Sharp Memorial Community Hospital, San Diego, California. Joint Contractors: Guy F. Atkinson Company and Trepte Construction Co., Inc.

"We are very pleased that we are obtaining an average of 6 re-uses," writes M. R. Montgomery, project manager. "Masonite Concrete Form Presdwood® was used for all exposed form work on this job.

"The number of re-uses has not been limited by the life of the material," he says, "but rather by mechanical injuries and the requirements of an unblemished architectural surface."

These grainless, all wood hardboards will help you save 3 ways:

1. Use the smooth side when you need a smooth surface to be painted or left unpainted.
2. Use the screen side for architectural concrete to provide a better paint bonding surface.
3. Use the screen side on concrete work where carborundum rubbing is specified—cuts hand rubbing costs 50% or more.

Extra advantages that work for you!

- Low first cost. Less than ½ that of other smooth-surface) methods.
- Can be used again and again.
- Can be curved for arches, columns, etc.
- Easily worked with ordinary carpentry tools.
- Won't split, splinter or crack.
- Large 4' x 8' and 4' x 12' panels handle easily, create fewer fins.

NATURALLY STRONGER WITH LIGNIN

PRESDWOOD WOOD MADE BETTER

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Please send me sample and your booklet on Concrete Form Presdwood.

Name.....

Firm.....

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City.....Zone.....

County.....State.....

"Masonite" signifies that Masonite Corporation is the source of the product

Ltd. (a New Zealand construction firm with headquarters in Wellington) took on the job jointly. Their force consisted primarily of New Zealanders working under the direction of Project Manager Lou L. Wheeler, a veteran U. S. tunnelman who had driven the Broadway Tunnel in San Francisco for Morrison-Knudsen.

At present the Morrison-Knudsen-Downer team is working on another bore for the same railroad line: the 1,700-ft-long Maoribank tunnel. Construction of this project began late in 1953 and is scheduled to be finished by the middle of this year.

Turkish hydro contract goes to British combine

The contract for construction of Turkey's $32.1-million dam and hydro-electric power project at Hirfanli, on the Kizilirmak River, has been awarded to a combine of British companies.

The project—a four year one—is designed to meet the steadily increasing power requirements of Anatolia.

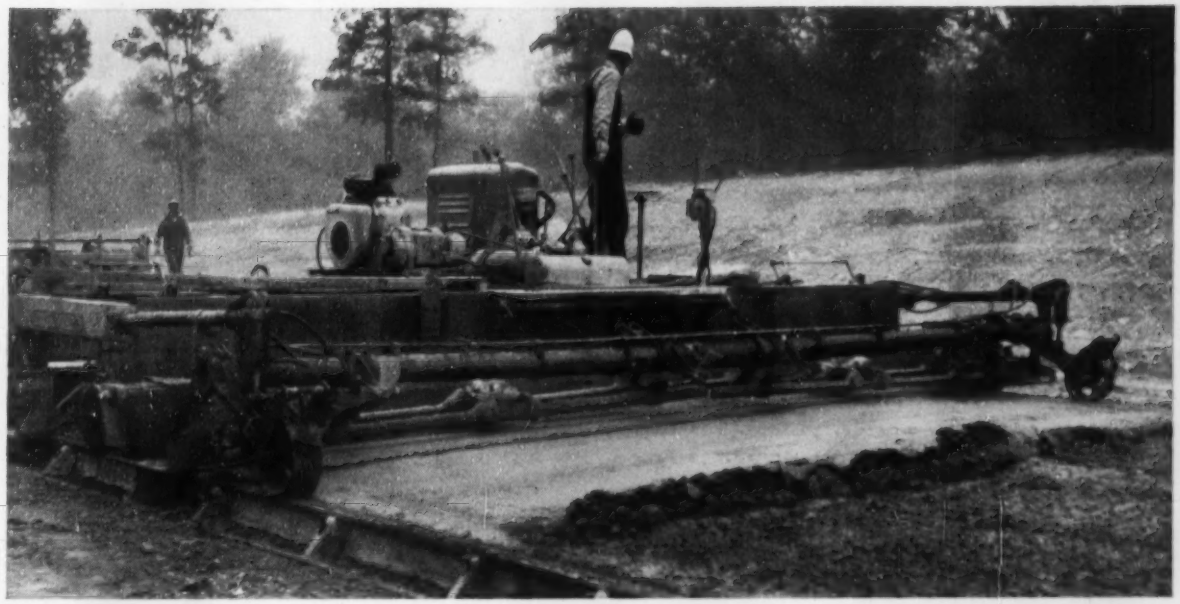
A 280-ft earth and rockfill dam—with 6.5-billion cu meters capacity—will be used for flood control and irrigation. The power station's 100,000-kw annual capacity (from four turbo-generator groups of 25,000 kw each) will provide 400 kwh of electricity for northwestern and central Anatolia.

The complete project includes a 43-mi transmission line linking it to the Kirikkale-Karabuk-Catalagzi and the Kirikkale-Ankara-Sariyar power systems. A second line—in the direction of Kayseri—will complement other major hydro-electric development projects.

International briefs . . .

• **New Nile dam**—To supply 1 billion cu meters of water for agricultural expansion projects, Sudan plans to erect a 170-ft high, 2,200-ft long Nile River dam at Roseiras. Since Nile waters can't be regulated without Egypt's approval, Sudan representatives will meet with Egyptian irrigation experts in May to get a go-ahead signal for the project.

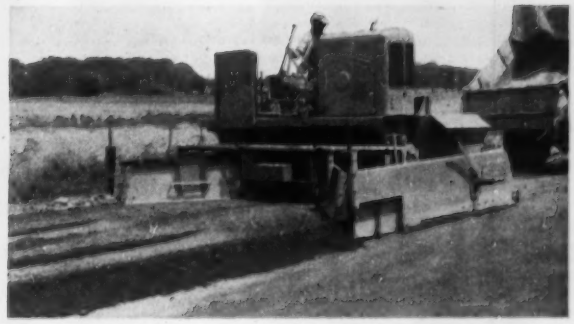
• **Canadian engineers' chief**—Donald M. Stephens—chairman and general manager of the Manitoba Hydro-Electric Board, president and general manager of the Winnipeg Electric Co.—has been elected president of the Engineering Institute of Canada. He will take over the post in May, during the organization's annual meeting at Quebec City.



Precision Finishing of Concrete The Jaeger-Lakewood Finisher is the most flexible machine yet developed for placing and finishing concrete slab. In addition to a wide range of independent travel and screeding speeds to meet any condition, Jaeger offers the unique advantage of a diagonally adjustable rear screed for laying pitched slab and super-elevated curves without the usual hand work along the higher form. Vibratory equipment includes exclusive bullnose vibratory screed where deep internal vibration is specified.

How Jaeger methods help low bidders

Screw Spreading of Concrete The screw action of the Jaeger Concrete Spreader remixes and intermixes all paver batches to one uniform texture and higher density, positively eliminating segregation. It also gives your operator closer control of the spreading operation. On high production work the Jaeger Spreader can be furnished with oscillating screed for precision strike-off ahead of the finishing machine. Saves the cost of one or more shovelers, and often, the need for a second finisher where otherwise specified. Vibratory equipment can also be furnished if desired.



Low Cost Spreading of Aggregates In one pass, the Jaeger Paver-Type Aggregate Spreader can lay all the tonnage your trucks can deliver — up to 10″ thickness of coarse stone or as much as 12″ of finer or graded materials in widths to 11′, or place an equal volume of material in lesser thickness up to 12′6″ width. You get that production with a machine that costs half the price of a bituminous paver and does accurate work on highway or airport base, or both base and top for secondary roads. Handles any aggregate, plant-mixed stabilized soil or free-flowing bituminous mix. Two models, to fit any trucks.

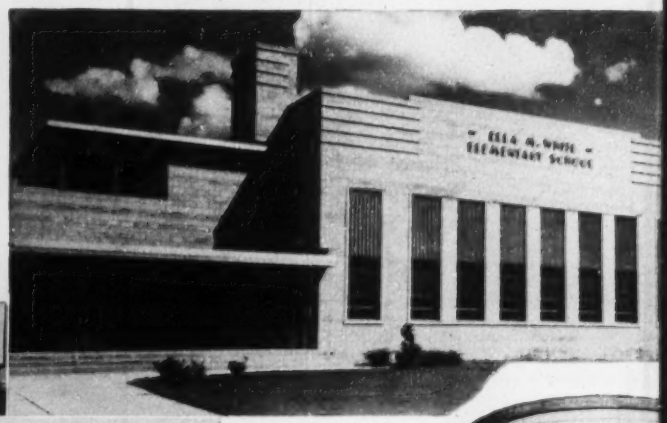
For full information on these machines and methods, operating data and prices, talk with your Jaeger distributor or write us. Catalog on request.

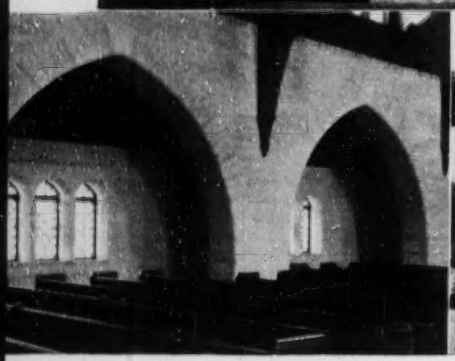
THE JAEGER MACHINE COMPANY

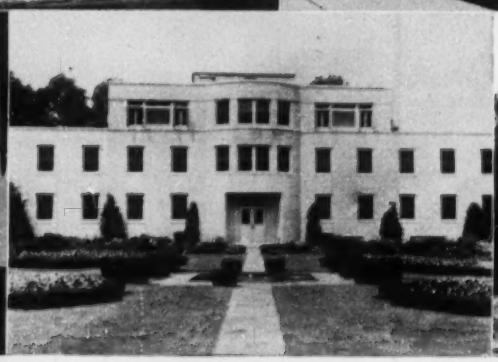
200 Dublin Avenue • Columbus 16, Ohio

AIR COMPRESSORS • PUMPS • LOADERS • CONCRETE MIXERS • TRUCK MIXERS

Build Better with VIBRAPAC Block

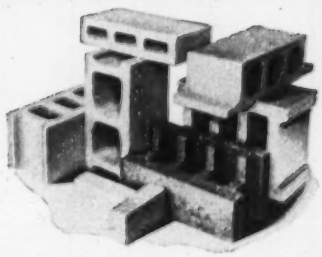




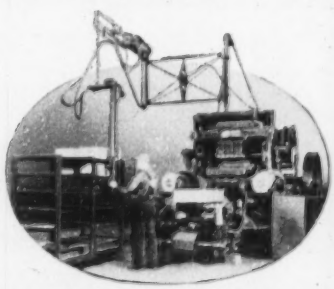


Perform Modern Masonry Miracles on Both Exteriors and Interiors

A half century of scientific progress in quality control has won universal respect for VIBRAPAC Block. The functional qualities of these Modern Masonry Units, plus their wide range of practical adaptability, have inspired the most advanced creative construction. Many years of research have paved the way for lightweight aggregate and perfected VIBRAPAC manufacturing processes. As a result, structural loads are reduced without sacrificing rugged, constructional security. Firesafety — stormsafety — insulation against heat and cold — acoustical and soundproofing qualities — low initial cost — low upkeep. All these are added advantages. Yes, you'll be proud of the modern masonry miracles you can perform with VIBRAPAC Block.



A few of the many standard modular building units engineeringly sound, architecturally beautiful, for top quality construction at low cost.



BESSER VIBRAPAC — the fully automatic concrete block machine. Produces high quality masonry units, of any desired texture and density, at the lowest possible cost.

BESSER
50th Anniversary
1904-1954

Ask for FREE copy of bulletin illustrating the complete line of standard modular building units available and giving technical guidance in their many structural uses. Contact your local VIBRAPAC Block Plant or write direct to the Besser Manufacturing Company, Box 181, Alpena, Michigan, U. S. A.

..a Half Century of Concrete Masonry Progress!

MUNICIPAL

Sewerage bonds a primary vote item

Two California cities will poll voters on $19-million worth of sewerage bonds in June 8 primary elections.

Two California cities will submit sewer bond issue proposals to their voters on June 8. A $16-million proposal, the largest ever placed before the voters in San Diego, will appear on the primary election ballot, and if approved, will finance major sewerage works.

San Francisco simultaneously will poll its voters on a $12.6-million proposal approved by its board of supervisors recently.

• **San Diego**—The southern city's proposal calls for expenditure of $3,125,000 for a 100-mgd sewage treatment plant; extensive trunk line sewers and a 7,500-ft ocean outfall, $11,935,000; and three pumping stations, including one in the line and two at the new plant, $835,000. Total estimates are $15,899,000.

The plan is one recommended in an extensive study of San Diego County sewage problems financed by the county board of supervisors. It was completed by an engineering group headed by A M Rawn, chief engineer and general manager of the Los Angeles Sanitation District, and has come to be known as the Rawn report. (ENR, Aug. 9, 1952, p 68)

A study of Pacific Ocean currents and underwater topography led to selection of the ocean shore of Point Loma, the westernmost portion of the area, as a proposed site for the new plant. Here it is possible to obtain an ocean water depth of 150 ft, deemed adequate for proper dispersal of the treated wastes through the long outfall. Such a depth could not be reached from any other site without construction of a much longer outfall.

The Point Loma plant will provide primary treatment. The collection system will be by gravity type sewer lines with tunnels under highly developed areas along the San Diego waterfront. Two lifts will be necessary in the trunk line to convey sewage to the treatment plant.

(*Continued on page 53*)

Long awaited connection

Completed more than two years ago, this truss stood like an elevated road to nowhere as other sections of the Boston Central Artery were rushing ahead. Ceremonial closing of the span recently was accomplished when the first of four girders was hoisted into position and connected.

SERVICED BY THE MEN WHO SELL IT—*Another reason why You can depend on*

TAPECOAT®

the Coal Tar Protection in Handy Tape Form

The service behind TAPECOAT is as distinctive as this coal tar coating, itself.

To make this service as dependable as the product, the sales engineer who sells the job also services it. This means that you can count on everything he tells you because he is responsible for the job *personally*.

The fact is, TAPECOAT gives you more lasting protection for your money because it is a quality coal tar product, and coal tar is nature's own defense against corrosion.

Specify TAPECOAT for pipe, pipe joints, tanks, and other vulnerable steel surfaces above or below ground. Its performance record since 1941 merits your complete confidence.

TAPECOAT comes in rolls of 2", 3", 4", 6", 18" and 24" widths. It's easy to apply as our sales engineers will demonstrate.

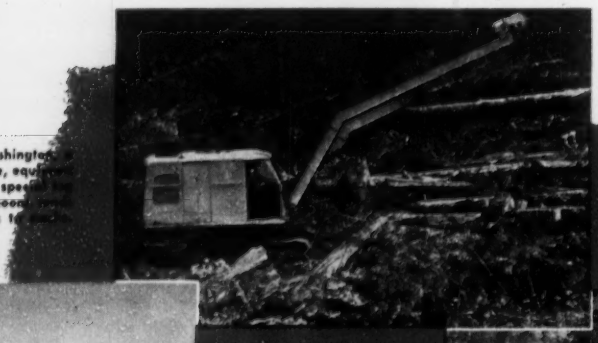
Write for brochure and prices today.

The* TAPECOAT *Company

Originators of Coal Tar Tape Protection

1551 Lyons Street, Evanston, Illinois

BUCYRUS-ERIES make money



In Washington, a 38-B crane, equipped with special heeling boom, logs to mill.

In Connecticut, a 22-B shovel makes a cut for a new road to Boulder Dam.

In California, an 88-B crane, with 1½-yd. clamshell, is erecting bridge construction.

In Texas, one 22-B shovel digs a sewer line trench in downtown Fort Worth.

In New Mexico, hard malapai rock is cleaned from a pipeline trench by a ¾-yd. 22-B dragshovel equipped with tractor-type crawlers.

for contractors

In Vermont, a road to a new dam site is cut through a hillside by a ⅜-yd. 10-B shovel.

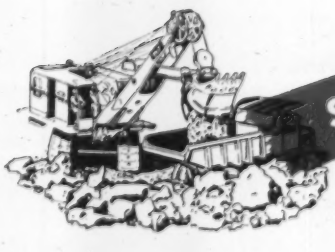
In Florida, a 2½-yd. 54-B performs ditching operations in the Everglades.

Wherever you go, you'll see Bucyrus-Erie excavators and cranes on construction projects of all types . . . making money for their owners. Why? Because contractors everywhere recognize the value of Bucyrus-Erie Individual Design. Each model is designed from the ground up to do the most effective job of handling its rated load. Speed, power, strength and weight are all properly proportioned for efficient, economical operation.

Find out what Individual Design can mean to you on your jobs. Get all the facts from your nearby Bucyrus-Erie distributor. 13E54C

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN



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SHOVELS • DRAGSHOVELS • DRAGLINES • CLAMSHELLS • CRANES

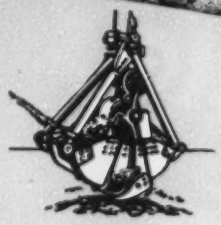
Change MAINTENANCE LOSSES COSTLY DOWN TIME PARTS HEADACHES into Profit

WITH BLAW-KNOX *"Complete Package"* ADVANTAGES

ONE of the most important benefits of "Complete Package" operation is a drop in your maintenance and down time costs that shows up on your profit sheet. When *all* your concrete paving equipment belongs to one family, *preventive* maintenance becomes standard practice. One Blaw-Knox trained man can service all your "package" equipment, and while he services one machine, he automatically checks over all the others to stop trouble before it starts.

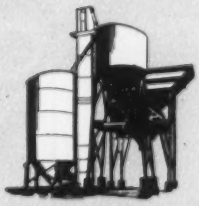
When you do need parts, there's no time or effort wasted running down what you need. Just one phone call to your nearest Blaw-Knox distributor will bring you genuine factory replacement parts usually from his complete stock.

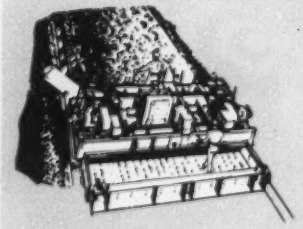
In addition, you get these other "package" advantages . . . every piece of equipment you need, from forms to paver to finisher, in a package *to fit your specific job*, and designed to work together. You can get the exact "package" you need all on one order, in one shipment, with only one financial contact, and backed by one responsible manufacturer. Talk to your Blaw-Knox distributor today about all the advantages of the one-source "package" paving system.



CLAMSHELL BUCKETS

AGGREGATE AND CEMENT BATCHING PLANTS





PRECISION SUBGRADERS

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. . . your only source for the "Complete Package"

ASK ABOUT THE "COMPLETE READY-MIX PACKAGE" for speedy, economical ready-mix concrete operations. It includes Hi-Boy Trukmixers, Aggregate and Cement Batching Plants and Clamshell Buckets. For other requirements, there's a big selection of Charging Plants, Central Mixing Plants, Concrete Buckets, and Steel Forms for roads, airport runways, sidewalk, curb and gutters.

BLAW-KNOX COMPANY
BLAW-KNOX
EQUIPMENT DIVISION
PITTSBURGH 38, Pa.
Cable Address: BLAWKNOX, N.Y.

The project will include 10,600 ft of 84-in. and 5,000 ft of 90-in. reinforced concrete lined tunnels. Trunk line sewers include 29,300 ft of 96-in. and 16,400 ft of 84-in. reinforced concrete pipe. The outfall, all 72-in. r. c. pipe consists of two 2,000-ft diverging lines onshore and two lines diverging off-shore for 5,500 ft.

When the plant is completed, the present 40-mgd primary treatment plant which discharges into San Diego Bay will be mothballed for the time being. Later, it is planned to convert the plant into a water reclamation plant. The water reclaimed would be used for irrigation, largely on city parks. Engineers believe that within a few years the price of water in this perennial drought area will make such an operation feasible. They say that the water would be suitable for domestic use, but it will not be so used because of possible adverse public opinion.

The Rawn report found that San Diego Bay, used extensively by the Navy, commercial shipping, the fishing fleet and for recreation, is receiving sewage in a volume that exceeds its ability to absorb it. The degree of pollution is nearing the point unacceptable by state health department standards.

San Diego sewage was first treated in 1943 with completion of a 14-mgd capacity plant. In 1950, capacity was raised to 40 mgd. The plant is now treating an average 39 mgd, but at times the inflow exceeds plant capacity.

Although the point is not being emphasized by groups promoting the bond issue, the new plant actually is designed with sufficient capacity so that San Diego can handle sewage from the suburban communities of National City, Chula Vista, La Mesa, El Cajon and San Ysidro on the Mexican Border. This would be done on a fee basis. San Diego city officials took the position that it would do no good to handle the city's problem if suburban communities, upland from San Diego, had no proper means of sewage disposal.

This ties in with the serious pollution situation being generated by an international sewer line that serves both Tijuana, Mexico, and San Ysidro, San Diego County.

According to a recent report by the San Diego Regional Water Pollution Control Board, and county and city health departments, the Tijuana-San Ysidro outfall into the Pacific on the U. S. coast is creating a condition at Imperial Beach, Calif., that "con-

(Continued on page 54)

BRIEFS from "THE YEOMANS GUARD"

Recently expanded sewage treatment system at Webster-Crestwood, St. Louis County, Missouri, suburban development

Webster-Crestwood, Missouri —

A YEOMANS SOLUTION TO THE SANITATION PROBLEMS OF A TYPICAL GROWING COMMUNITY

How a sensible long-range sanitary program is working out exactly according to plan is well illustrated by the experience of Webster-Crestwood, St. Louis County suburban development—an example that many thrift-minded small communities can profitably follow.

THE LONG-TERM PLAN

In 1948 Webster-Crestwood installed a Yeomans activated sludge sewage treatment system designed and constructed to serve a population of 1600; with planned provision for economical expansion, step by step, as required to serve future increases of population—up to 6400.

PLANNED EXPANSION . . . STEP ONE

Webster-Crestwood grew as expected; and in 1953 Step One in the long-range program was accomplished—the treatment system was expanded to serve a population of 3200. The job was done easily and at moderate cost. Future expansions will be accomplished in the same orderly, economical manner.

HELP FOR OTHER SMALL COMMUNITIES

To meet the sanitation needs of small communities, Yeomans has developed special small-community systems for both primary treatment and complete treatment—activated sludge process and trickling filter process.

Each Yeomans system meets these basic needs common to practically all small communities, new subdivisions, isolated schools, institutions and industrial plants:

- Compliance with local health requirements
- Economy of construction and operation
- Compactness and attractiveness
- Specific "tailoring" for the job to be done
- Simple maintenance

MORE INFORMATION AVAILABLE

Write today or use the handy coupon to get information about Yeomans activated sludge sewage treatment systems . . . and the Yeomans series of trickling filter "Package" Plant systems for populations from 500 to 2500.

YEOMANS BROTHERS COMPANY

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MELROSE PARK (CHICAGO), ILLINOIS

Please send

☐ Activated Sludge Systems information (Specify population requirements)

☐ New Bulletin on "Package" Trickling Filter Systems for Small Communities

My name, firm and address are as follows:

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For Industrial Roofing & Siding

specify Grade-Marked

Galvanized Sheets

for PEAK PERFORMANCE

Engineers and designers of industrial and commercial buildings know galvanized sheets to be superior building material for this type of construction—particularly for roofing and siding. They know that time-tested galvanized sheets offer:

- **SHORT-TERM *plus* LONG-TERM ECONOMY**
  Low *initial* cost, low *application* cost, low *per-year* cost
- **STRENGTH OF STEEL; RUST-PROTECTION OF ZINC**
  Withstand rough treatment, add structural strength and are fireproof

All galvanized sheets give years of useful service. But the *heavier* the zinc coating, the *longer* the life of the base sheet. Because various weights of zinc coating look alike on the surface, it pays to *specify a grade-marked sheet* . . . Get the heaviest coating you can buy!

ZINC INSTITUTE 2 OZ. COATING REG U S PAT OFF SEAL OF QUALITY

IT'S THE ZINC THAT STOPS THE RUST

For long, rust-free service, specify a heavy duty sheet such as the "Seal of Quality" with a zinc coating of 2 *ounces per square foot*. For heavier coatings order according to ASTM Specification A 93.

ATTENTION: MAINTENANCE DEPTS.

Get the facts on MZP (Metallic Zinc Paint) for structural steel and galvanized surfaces. Also, zinc for cathodic protection and grounding electrodes. Check coupon below.

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stitutes pollution" as defined by statutes.

The study found that the pollution results from discharge of an average of 3.5 mgd of raw sewage from the outfall. Ninety-five percent of the sewage originates in Tijuana, the study reported.

The Tijuana area drains north into the United States, and engineers said it would be economically unsound for the Mexican city to build a sewer line to the sea on Mexican soil because of high bluffs south of the border.

In addition, such a line would not solve the U. S. pollution problem, because studies by Scripps Institution of Oceanography (a branch of the University of California) show that wave action is such that sewage so discharged still would be swept north to the United States. An adequate outfall would have to extend many miles to sea to obtain sufficient depth for dispersal.

The report declared:

"Within the shoreline of these stations coliform counts were found to be in excess of the surf bathing water quality standard of the State Board of Public Health.

"This includes the beach areas of Imperial Beach (used by 163,550 persons last year) where extensive surf bathing was observed during the investigation. Deposition of debris of sewage origin was observed along the shoreline and septic odors were detected from time to time." The advisory committee to the international boundary commission has held discussions on the problem, but its report when it is made must go to the Department of State, in Washington, D. C.

• **San Francisco**—The $12,645,000 bond issue for sewer improvements also will be submitted to public vote during the state primary elections.

The voted funds will be used mainly for completion of collecting sewers, a $6,420,000 item. The project includes a $1-million, 4,000-ft tunnel that will be constructed under Candlestick Hill, in the southeast section of the city, as part of the collection system for the Southeast Sewage Treatment Plant there.

Also planned are three new pumping stations and replacement of inadequate sewers ($3,890,000); new sewers for newly built-up areas, ($1,045,000); replacement of sewers in subsiding streets to cost $300,000, and $300,000 worth of improvements in existing sewage treatment plants.

A $690,000 expenditure is planned

(*Continued on page 58*)

standardize on MUELLER®

"B" Tapping and Inserting Machine
Drills and taps mains and inserts corporation stops, ½" to 1", under pressure . . . also used for dry taps, ½" to 2½" . . . similar machines available in larger sizes.

"C-1" Drilling Machine
Makes cuts 2" to 12" in any size main . . . dry or under pressure . . . power-operated by air motor or gasoline engine . . . hand-operated model also available.

a complete line of water works equipment

Low maintenance and high efficiency are characteristic of all Mueller water works equipment, supplies and specialities. Each item is engineered to do its specific job and is manufactured from the finest of materials — guaranteeing long, trouble-free life. A high degree of standardization and interchangeability requires a minimum inventory of replacement parts in case of accident or emergency. Mueller's complete line of products, a few of which are shown, provides a single source for your water works needs. All products are fully tested and warranted.

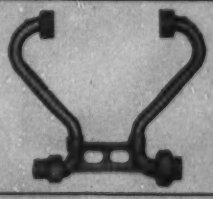
Corporation Stops
Designed for insertion into mains under pressure . . . ground key . . . wide range of sizes and types . . . variety of inlet and outlet threads and connections.

Service Clamps
For use on all types of pipe . . . single or double strap . . . full depth tapped hole . . . Neoprene or lead ring gasket . . . all sizes and threads available.

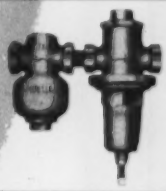
Curb Boxes
Telescoping type . . . prevents damage to stop or piping . . . large steel upper section will not revolve in base. Bronze-to-iron threads for easy plug or lid removal . . . with or without stationary rod.

Curb Stops
Ground key stops . . . proper taper prevents sticking . . . allows easy operation . . . inverted key or solid tee head type . . . wide range of sizes and connections.

Meter Setting Equipment
Copper meter yoke with multi-purpose end connection . . . iron meter yokes . . . plain or lock wing angle stops . . . meter couplings . . . complete line available . . . variety of inlets and outlets.



Regulators and Relief Valves
Large diaphragm type . . . all working parts accessible without removing from line . . . high or low pressure . . . for water, air, gas or oil.



Fire Hydrants
Improved and standard types, sizes to 6¼" valve opening . . . compression type . . . locked-in nozzles . . . safety flange minimizes collision damage . . . 2½" size and flush type also available . . . AWWA.

Gate Valves
Exclusive "four-point contact" disc wedging mechanism . . . fully bronze-mounted . . . conventional or "O" ring stem packing . . . rising or non-rising stem . . . AWWA.

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Designed for installing in line without a shutdown . . . operated like gate valve after installation . . . parts interchangeable with AWWA gate valve . . . 4", 6" and 8" sizes.

See our complete line of water works material and equipment in Booths 118-119 at the A.W.W.A. Convention in Seattle.

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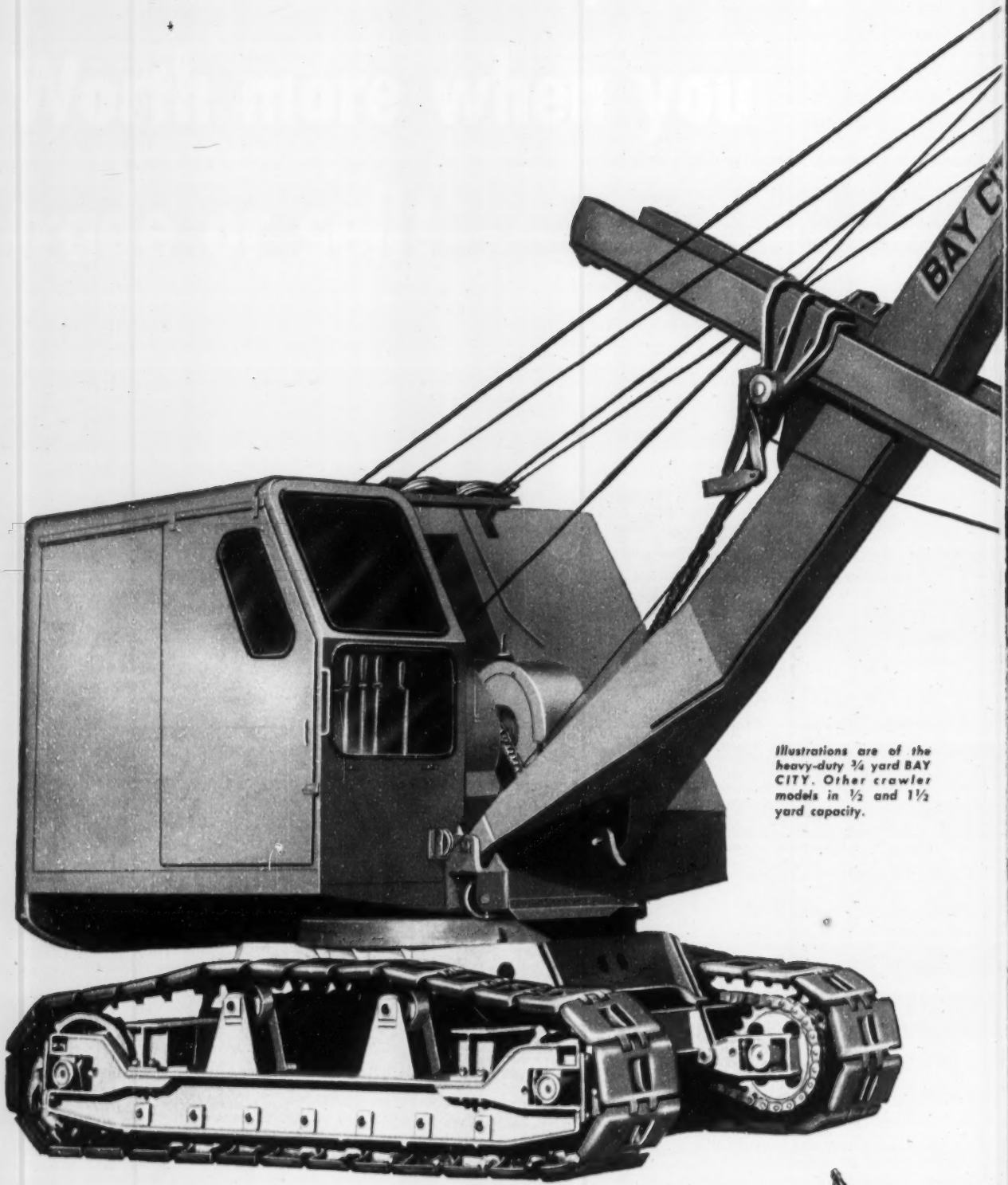
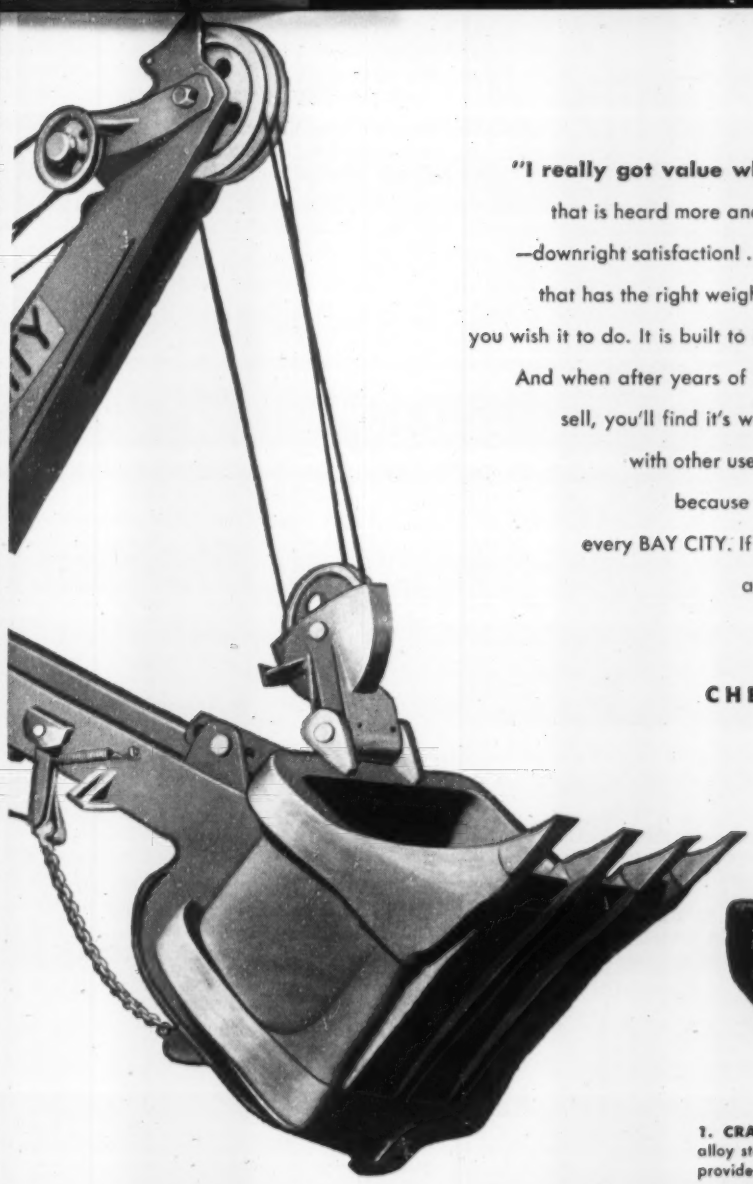


Illustrations are of the heavy-duty ¾ yard BAY CITY. Other crawler models in ½ and 1½ yard capacity.

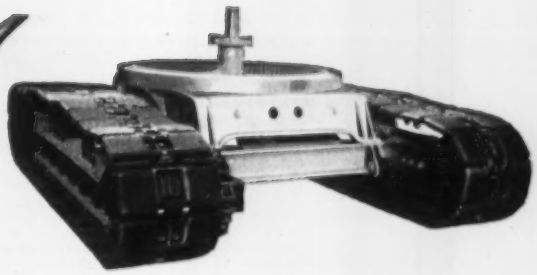
BAY CITY

BAY CITY SHOVELS, INC., BAY CITY, MICH. • SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

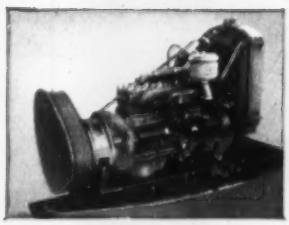


"I really got value when I bought that BAY CITY!" is a sentence that is heard more and more from BAY CITY owners. It means one thing —downright satisfaction! . . . and even on the toughest jobs. Here is a shovel that has the right weight, power, stability, and balance for whatever job you wish it to do. It is built to insure years of steady, dependable performance. And when after years of profit-producing work you are ready to trade or sell, you'll find it's worth more then, too. Yes, even sitting in the yard with other used machines it still commands a higher price. That's because there's extra value . . . extra quality built into every BAY CITY. If you want a machine that will out-work, out-earn, and out-live any other crawler, buy the BAY CITY.

CHECK THESE WANTED FEATURES THAT YOU GET IN THE BAY CITY



1. CRAWLER MOUNTING with long, wide crawlers, unit cast alloy steel base, sturdy center post and large diameter roller path provides firm foundation.

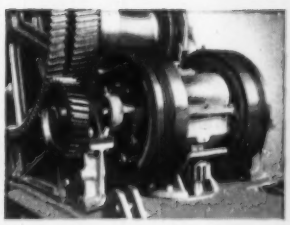


2. BIG ENGINE, gas or diesel, mounted directly on cast rotating base . . . large displacement and slow R.P.M. gives added torque.

6. TANDEM DRUMS mounted in ball-bearings permit straight cable lead and big cable capacity.

9. WORM BOOM HOIST (standard or independent) is safe and accurate because it raises or lowers by power only.

12. MANEUVERABILITY is assured by differential drive permitting sharp or gradual turns while travelling.

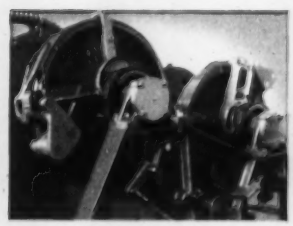


3. POWERFUL SWINGERS of the internal two-shoe type with large, heavy iron drums provide smooth operation, best heat dissipation and wear resistance.

7. HELICAL GEARS give long life and quiet, smooth operation because of gliding contact.

10. OPERATING CONTROLS are all within easy reach of the adjustable operator's seat.

13. CONVERTIBILITY to shovel, crane, clamshell, dragline or hoe is possible with minimum effort.



4. BOOSTER CLUTCHES for drums are set by mechanical linkage to assure accurate load control and easy operation with minimum maintenance.

8. UNIT CAST REVOLVING TABLE provides firm base for all machinery, engine and boom-foot lugs.

11. CRAWLER ADJUSTMENT is quick and easy through compression bolts in grease filled pockets.

5. POWER DIPPER TRIP makes quick, effortless dumping of bucket possible. Trip is actuated by push button on top of swing lever . . . no lost motion.

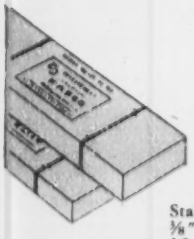
Write for this catalog describing BAY CITY Crawlers of ½ yard and up. Catalogs also available on BAY CITY CraneMobiles and CraneWagons in capacities to 25 tons.

Eliminate the Danger of Tilting and Spalling

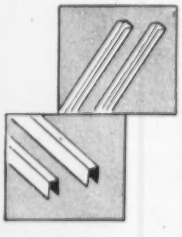
with **KAPCO**

TONGUE and GROOVE JOINT

Pre-formed Kapco Tongue and Groove Joint provides the keyed action essential to maximum load transmission. This non-extruding joint is extensively used as either center strip or contraction joint and is especially suitable for the "lane-at-a-time" method of construction for highways, airports and industrial floors. Rigid control of the quality of asphalt and other ingredients provides added rigidity, ease of handling and absolute uniformity.



Kapco Tongue and Groove comes neatly packed in steel strapped cartons which provide easy transportation and storage as well as protection on the job site. The joint is constructed of ⅛" asphalt mastic board in standard lengths of 10'1". Widths vary to accommodate standard practice of using joint which is ½" narrower than the depth of the concrete slab. Standard punch is 2'6" on centers for ½" dowel bars and 24" on centers for stakes.



Stake pins for Kapco Tongue and Groove are ⅛" channel type, 15" long, 300 pins to a bag. 12 gauge installing cap plate is available in standard 5 or 10' lengths.

Order separately or in combination with other Kapco products which include famous Kapco Asphalt, Fibre or Fiberglas Expansion Joint, Kapco Rubber Asphalt Joint Sealer, Kapco Concrete Curing Compound, etc., etc., etc.

For your convenience why not order *all* of your expansion joints, joint sealers and curing compounds from *one* source!

WE GUARANTEE PROMPT SERVICE!

KEYSTONE ASPHALT PRODUCTS COMPANY

DIVISION OF AMERICAN-MARIETTA COMPANY

General Offices: American-Marietta Building, 101 East Ontario Street, Chicago 11, Illinois

for a sewer outfall extension south of Islais Creek that would permit filling of tidelands in the area.

Construction of the projects planned under the proposed bond issue will require four to five years, according to Ralph G. Wadsworth, city engineer.

Growing pains

Independence is sought by Levittown, Pa., residents

Levittown, Pa., the $10-million, 8,000-family development that Levitt and Sons, Inc., built in the rich Bucks County farmlands near Philadelphia, wants independence as an incorporated borough. The community wishes to pull out of four municipalities in which parts of it are located.

Residents of Levittown voted overwhelmingly for this proposal, but opposition has developed both from within and outside the community that now boasts a population of 25,000. The Levitts plan eventually to have 16,000 dwellings, thus the completed project will have double present population.

The geographic location of the community has influenced the residents' action.

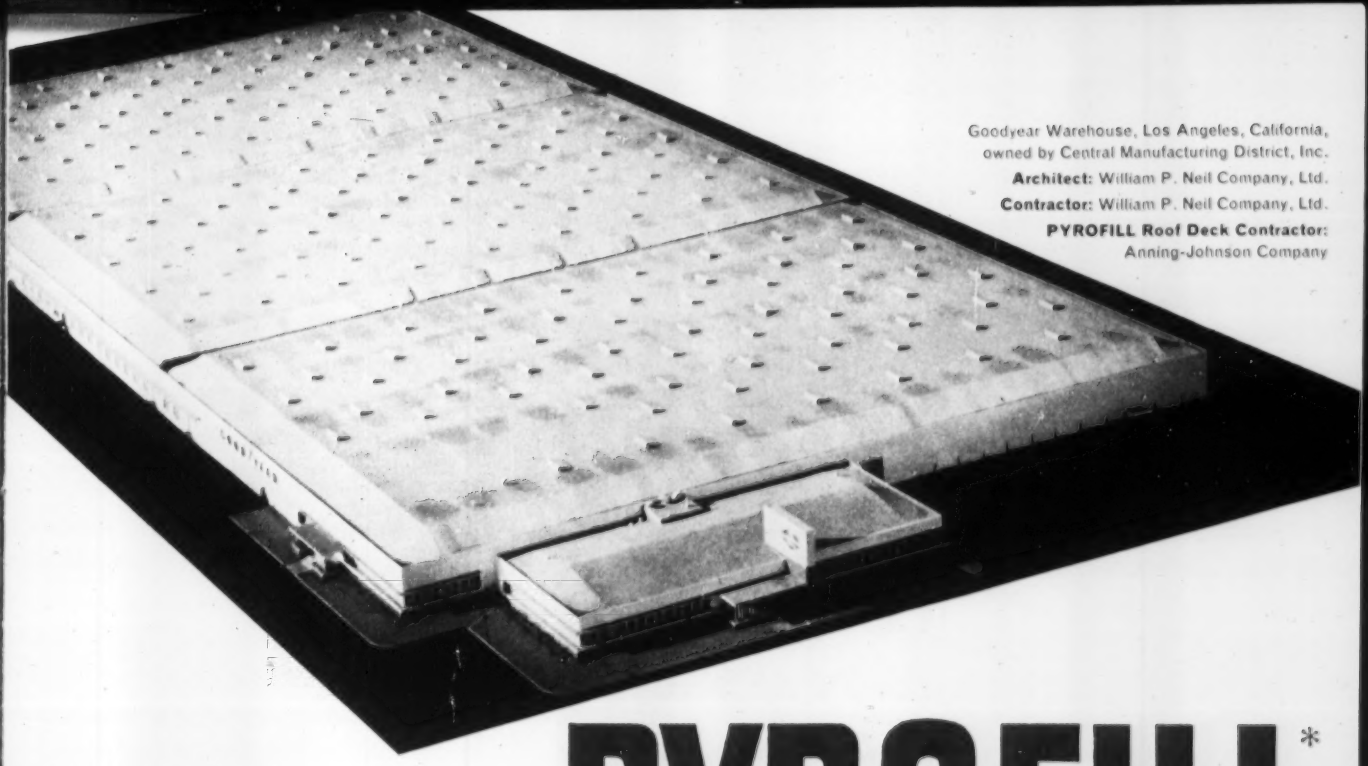
The Levitts have built and are building Levittown in the borough of Tulleytown and the townships of Bristol, Falls, and Middletown (ENR May 15, 1952, p. 51). Last spring, a Levittown civic association formed an incorporation study committee to look into the question, and a report, recently released, claims that taxes in an incorporated Levittown would be lower than those in the four government sub-divisions to which the community now pays taxes. The report said incorporation would bring many "intangible benefits to Levittown, which would be the first borough to be established in Bucks County since 1928.

• **Borough status is powerful**—Tulleytown, a borough, and the smallest government sub-division embracing Levittown, is thought to be the main stumbling block as far as incorporation is concerned. Sections of the three townships can be annexed, but a borough is a governing unit of higher order, thus presenting a question as to whether part of it can be annexed to a borough that at present does not exist.

Opposition from the four municipalities is based primarily upon the potential loss of tax revenue.

Tullytown, with a 1950 population of 648, has inherited the Levittown

(*Continued on page 60*)



Goodyear Warehouse, Los Angeles, California, owned by Central Manufacturing District, Inc.
Architect: William P. Neil Company, Ltd.
Contractor: William P. Neil Company, Ltd.
PYROFILL Roof Deck Contractor: Anning-Johnson Company

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INCOMBUSTIBLE GYPSUM

roof decks fear no fire!

PYROFILL is the original Mill-Formulated Gypsum Concrete. It will not burn, often produces insurance savings of 30% or more compared with combustible construction.

PYROFILL decks erected over 30 years ago are still giving excellent service.

They offer these other outstanding advantages:

LOW COST . . PYROFILL is poured over permanent formboards; sold erected in place at amazingly low unit costs.

FAST INSTALLATION . . A single crew often pours more than 20,000—sometimes as much as 30,000—sq. ft. in a single day.

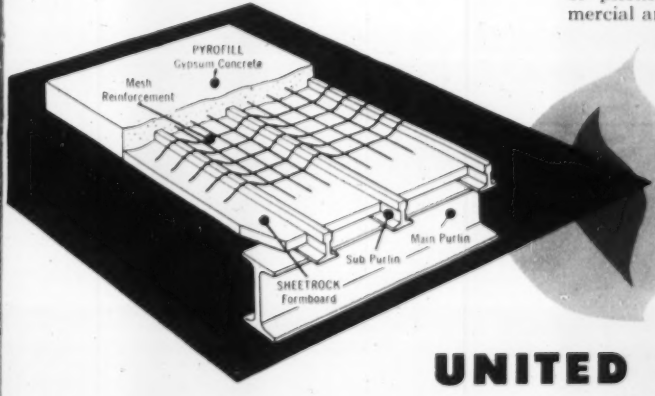
ADAPTABLE . . Suitable for flat, curved or pitched roofs on industrial, commercial and institutional buildings.

LIGHTWEIGHT . . Weighs only 10 to 12 lbs. per sq. ft., permitting important savings on structural steel.

STRONG . . PYROFILL slabs have a factor of safety of 10 or more under normal roof loads. Reinforced with sturdy welded wire mesh.

For further information contact the authorized PYROFILL contractor in your area, or write U.S. Gypsum, Dept. EN-1, Chicago 6.

*T. M. Reg. U. S. Pat. Off.



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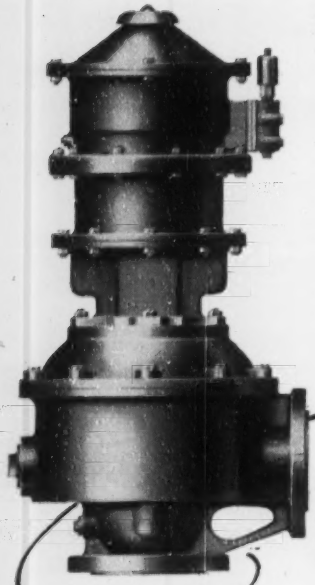

New Simplex Type CCAV Valve. Combination controlled-closing and vacuum-breaking valve.

ONE 4-INCH CONNECTION to your main pipe line...

PREVENTS { **surge rupture** **vacuum collapse**

Why take chances? No matter what the safety factor, surge and hammer can play some dirty tricks . . . rupture lines, blow out packing, fracture valves. And if the line breaks or is drained rapidly, it can collapse from vacuum.

Simplex Type CCAV is a new combination! A controlled-closing and vacuum-breaking valve to protect your lines against these dangers. It's easily installed, moderately priced, positive-acting.

When lines are being filled, Type CCAV Valve vents air to prevent binding, controls transfer time to prevent surge damage. Timing can be quickly set from a few seconds up to well over ten minutes—as dictated by site requirements. If hammer is excessive, Type CCAV automatically discharges water . . . extra protection for costly lines and fittings.

When lines are subject to collapse from rapid draining or line breaks, the Simplex CCAV acts quickly . . . breaks the vacuum for maximum safety.

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SIMPLEX®
VALVE AND METER COMPANY

shopping center with an estimated assessment valuation of $6.5-million. The 416 Levittown families living in the tiny borough—and evidently satisfied with their lot—have organized to fight incorporation.

Falls Township has the biggest industrial plum in the county—U. S. Steel's Fairless Works. It is assessed at $20 million and bears about 60% of the township tax load.

The storm now raging was not anticipated by proponents of incorporation. Other communities not directly concerned also are rendering lip service for and against the idea.

The Levitts are not taking part officially in the fracas. They just go on building. Their first homes were occupied about two years ago, and the trouble now, according to observers, stems from failure of the developers to survey the entire situation when Levittown was first proposed.

"The builder puts up the houses," said a county spokesman, "makes his profit—then residents can take it from there, purchasing any municipal problems that develop in their new community and those surrounding it."

Whichever way it goes, a lot of legal rumpusing is almost a certainty before it all will be settled.

What—no parking problem?

A far-sighted group of city planners long ago bought a 46,000-sq-ft tract of land right in the middle of Bluefield, W. Va., at a cost of $114,000, and earmarked it for a parking garage. When curb parking started to become a problem in 1948, the city built a $495,000, 4-level structure to house 800 vehicles, and to date it has served 1.5 million cars.

This mountain city of 21,000 just doesn't know what a parking problem is. The structure built on a hill has street access for all four levels.

Financing is being accomplished with self-liquidating bonds over a period of thirty years.

An envious visitor asking a West Virginian for an explanation of the seeming clairvoyance was met with a quizzical glance and "Shucks, don't take half an eye to see that cars is here to stay."

Peace seen in sewage fight

The end of a year-long dispute between the mayor and city council of Seattle, Wash., over a sewage disposal program (ENR, July 2, 1953, p 44) appears to be in sight. The council's streets and sewers committee has

(*Continued on page 63*)

It's a big jump

to SEATTLE

and the A.W.W.A. Convention

May 23 to 28

We'll hit the silk and get there in time to extend you a warm welcome. Be sure to visit the R. D. Wood Company's booth. There will be a display of R. D. Wood products, including America's best-known hydrant, the Mathews.

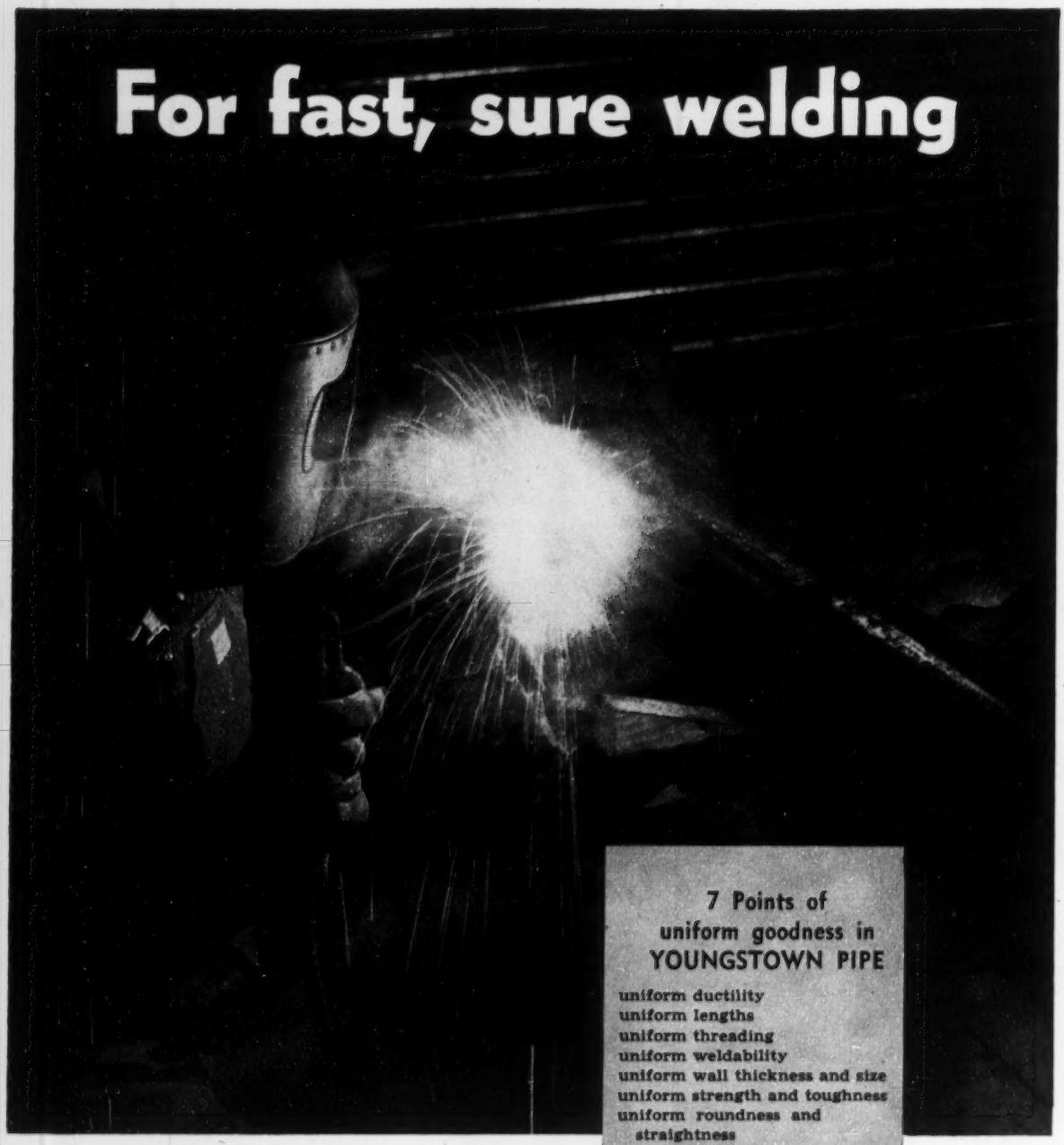
MATHEWS HYDRANTS

Made by R. D. Wood Company

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

For fast, sure welding



7 Points of uniform goodness in YOUNGSTOWN PIPE

- uniform ductility
- uniform lengths
- uniform threading
- uniform weldability
- uniform wall thickness and size
- uniform strength and toughness
- uniform roundness and straightness

●This man is position-welding an expansion joint in a steam line. Only good steel pipe like Youngstown takes this type of weld easily. That's because top-grade steel bonds better and faster. Depend on Youngstown and you're hours of labor ahead.

Youngstown

QUALITY YOUNGSTOWN SERVICE

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel

General Offices: Youngstown, Ohio - Export Office: 500 Fifth Avenue, New York 36, N. Y.

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - BAR SHAPES - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - RAILROAD TRACK SPIKES

voted to submit the controversy to an "outside" board of experts.

Mayor Allan Pomeroy has advocated complete sewage treatment to end the pollution of Puget Sound, but the council proposes a program of partial treatment with disposal by dilution through a long outfall in the sound until such a program proves inadequate.

The mayor proposed some time ago that the programs be reviewed by a committee, but he wanted to name the committee.

Councilman Al Rochester, a member of the streets and sewers committee, declared that people of the city "should be educated" to the fact that considerable sums of money would have to be spent to provide the secondary treatment advocated. An expenditure of at least $25 million would be necessary over a 10-year period, he pointed out.

N.Y.C. in annual water battle

Mayor Robert F. Wagner, Jr., of New York City, proclaiming that the city's water supply has fallen to its "worst April storage level in the history of upstate reservoirs," last week clamped rigid controls on water use in the metropolis.

The program, strictly curtailing street flushing and lawn sprinkling and calling for intensive campaigns to be waged through schools and press media, is aimed at a daily conservation of 100 million gallons.

Commissioner Arthur C. Ford, of the Department of Water Supply, Gas and Electricity, alarmed at the annual water deficit, is once more considering universal metering of water use as a method of combating waste. At present, only one fourth of the city's water consumers have meters.

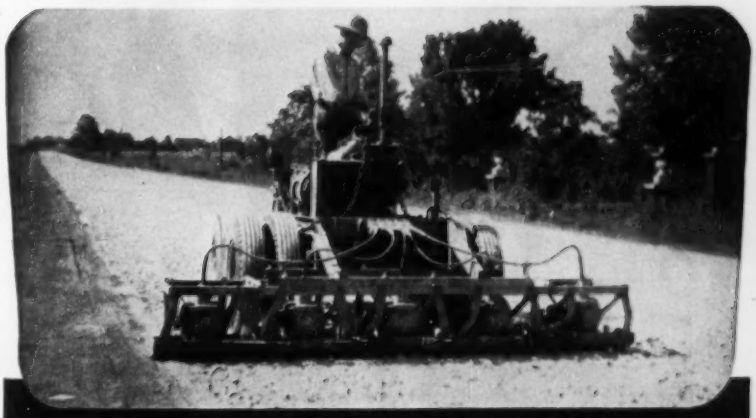
Slum clearance halted as industry interest lags

The anticipated rush of New England industries to purchase plant sites at the project office of a 51-acre slum clearance area in Montgomery, Ala., has failed to materialize. Thus contracts for razing sub-standard houses within the tract have been delayed.

To date, only 10 of 110 parcels of land have been purchased and razing awaits a prescribed 50% disposal of the property.

Under a loan and grant contract between the city and the federal government, the project will cost about $1.4 million with the city paying no more than $400,000. The federal gov-

(Continued on page 66)

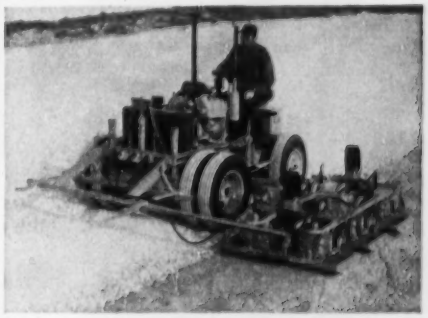


The JACKSON VIBRATORY COMPACTOR
FAST • EFFICIENT • VERSATILE

ON MACADAM CONSTRUCTION . . . In one pass it will sufficiently compact 12" of rock to support smooth rollers. In four passes it achieves final density. And when sufficient fines are spread, one pass suffices to fill all voids. In GRAVEL SUB-BASES (blanket course) 7" thick, this machine has achieved 98% Standard Proctor in one pass. Standard width is 13', 3". Working speeds: 0-60 F.P.M. Reverse travel speed: 5½ MPH.

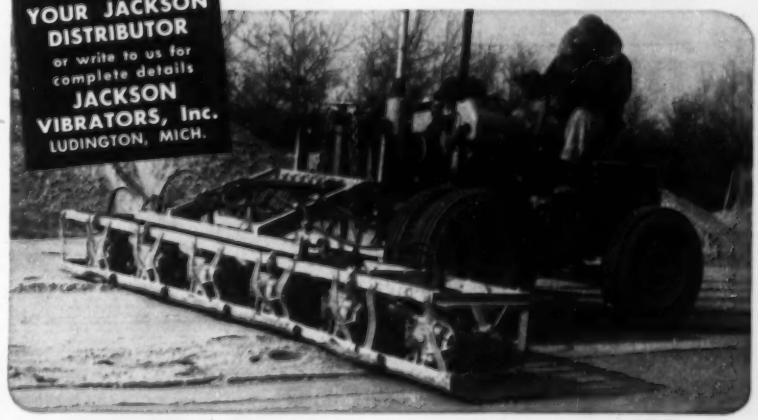
COMPACTS WIDENING STRIPS IN ONE PASS . . .

IN ANY GRANULAR MATERIAL used in flexible base-course widening. For this purpose compacting units are assembled in tandem, (3 deep, single or double row) and towed at side of tractor. Compactor bases of 12" and up may be substituted for standard 26" bases to suit requirements.



SAND FILLS, SUCH AS BRIDGE APPROACHES . . . another spot in which this machine shines. It's rapid and gets into places inaccessible to larger equipment. For the really tight spots one or more of the compacting units may be fitted with operating handles and used as self-propelling, manually guided compactors.

See
YOUR JACKSON DISTRIBUTOR
or write to us for complete details
JACKSON VIBRATORS, Inc.
LUDINGTON, MICH.



IT'S HERE! The new

FULL 1-YARD SHOVEL-CRANE

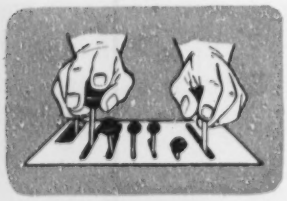
with Speed-o-Matic® power hydraulic control!

Now, for the first time in the heavy-duty 1-yd class, you can buy a machine combining unsurpassed productive capacity and maneuverability with practical transportability. In fact, an LS-98 with Speed-o-Matic control gives you the greatest productive capacity of any shovel-crane conveniently transportable over most state highways.

Two years of rugged field testing proved the LS-98 outstanding from both productive and service cost standpoints. It's an ideal machine for widely scattered operations as well as for large production jobs. Fully convertible, the LS-98 is your answer to handling more work at less cost.

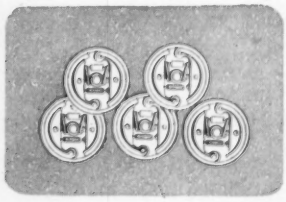
Here are only a few of the many important features that cut costs . . . boost output

Included as standard equipment are foolproof power steering and independent rapid boom hoist. These and many other advantages enable you to secure greater output at lower cost.



Fingertip, Speed-o-Matic control is easy on the operator . . . cuts end-of-the-shift letdown . . . helps increase output by up to 25%! Smooth, instant response eliminates jerk, jump or lag.

Greater usable hp, more live weight The LS-98 advanced design insures more efficient application of engine horsepower... incorporates greater live weight and strength to utilize extra horsepower.



Interchangeable, shoe type clutches The exclusive, self-adjusting Speed-o-Matic clutches are internal-expanding . . . easily accessible . . . all are interchangeable . . . clutch shells are alloy cast iron.

LINK-BELT SPEEDER LS-98

Get all the facts now on the great LS-98 . . . the industry's most advanced 1-yd machine

For complete details on how and why the LS-98 is your best answer to the problem of rising costs and shrinking profits, see your Link-Belt Speeder distributor. In many cases, he'll be able to give you an actual demonstration . . . let you prove for yourself why the LS-98 is great—truly the most advanced machine in the shovel-crane industry.

LINK-BELT SPEEDER CORPORATION
Cedar Rapids, Iowa

13,498

ASK FOR THE "INSIDE STORY"

See your distributor or write for the 98 Series catalog and the new booklet which gives you the "Inside Story" on Speed-o-Matic control.

BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

LINK-BELT SPEEDER

(Advertisement)

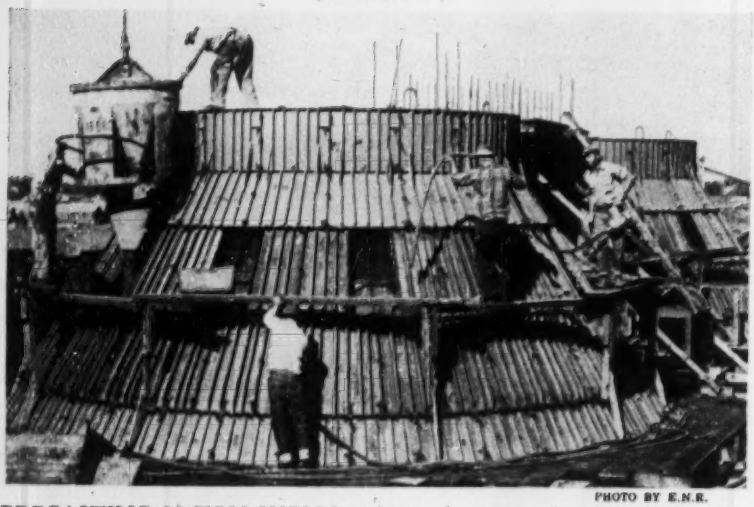


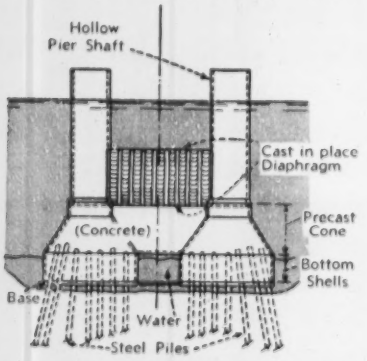
PHOTO BY E.N.R.

PRECASTING 90-TON SHELLS to be used as part of concrete piers for Richmond-San Rafael bridge requires thorough vibration to produce dense, high strength concrete, accurate finished surfaces, and prevent voids inside the sloping forms. Windows aid concrete placement.

Vibration makes strong, accurate precast shells for bridge piers

Precast reinforced concrete shells assembled underwater and filled with tremie concrete will provide 53 of 62 deep water bell bottom piers for the Richmond-San Rafael bridge on San Francisco Bay. Joint venture contractors Ben C. Gerwick, Inc. and Peter Kiewit Sons Co. developed the technique in preference to using steel shells that cannot be recovered. State engineers estimate that the design saves about $1 million over conventional methods investigated.

Reusable steel forms and careful placement and vibration produced uniform close tolerance surfaces and dense concrete free of voids on this job. These are just as important in other modern concrete techniques such as precast and prestressed girders, pressure pipe, and architectural work.



ASSEMBLED PIER consists of a base, a cylindrical bottom shell 9 feet high, the truncated cone section (cast in pairs, connected by a rectangular diaphragm) and a hollow cylindrical shaft, all precast. Entire structure is filled in place with tremie concrete.

• **Thorough vibration** is an essential part of the careful casting technique needed to produce the strength and accuracy required by the job. The shells, which vary from 14 to 34 feet in diameter, are cast in a yard about twenty miles from the bridge site, barged to the site and handled by a floating derrick. Vibration with VIBER high speed internal vibrators gives dense concrete, well bonded to reinforcing steel. This makes the shells salt water resistant to minimize steel corrosion and strong enough to be handled by lifting.

Accuracy of finished surfaces on the shells is doubly important. True surfaces make assembly underwater much easier. Good fitting joints also keep to a minimum loss of tremie concrete when the shell is filled after it has been assembled in place.

• **For complete details** on this interesting job refer to Engineering News-Record, March 4, 1954, and Construction Methods and Equipment, December 1953, March, April 1954. For information on the complete VIBER line of external and rubber tipped internal vibrators contact your authorized distributor, or VIBER COMPANY, 726 South Flower St., Burbank, California.

VIBER

CONCRETE VIBRATORS SINCE 1931

ernment is expected to pay about $800,000, with the remainder to come from the sale of industrial sites.

City officials hope to recover their part of the outlay through increased tax values and a decrease in fire hazards.

Families displaced by the program have been offered housing in low-rent projects recently developed through federal aid.

Plants lying within the area, but unaffected by the redevelopment, are facilities of Standard Brands, Alaga Syrup Co., W & W Pickle and Canning Co., and the Texas Oil Co.

Logging camp in N. Y. City suburb

For the first time in many decades, the maple forests of the Mianus River Valley—in the heart of the choice residential-commuter area of southwest Connecticut—are resounding with the sounds of a full scale lumbering operation.

The whine of the gang saws in a portable mill blends with the sound of axes and shouts of men guiding horses that haul the timber to the trails.

The scene is part of the initial operation of clearing the bed site of a billion-gallon reservoir that will supply water to Greenwich, Conn., and Port Chester and Rye, N. Y.

Behind the forty lumberjacks (imported from Canada, Maine and Vermont), are seven power shovels, five bulldozers and 14 trucks preparing the rocky bed.

The Mianus, last untapped natural source of water supply for Greenwich, will provide a minimum yield of three mgd when the reservoir is completed.

A 1,200-ft earth dam seventy feet high will impound water in a 216-acre reservoir three miles long.

Merritt-Chapman and Scott, General contractors for the project expect to finish the $3-million project before the end of the year.

Big year for island builders?

The General Contractors Association of Hawaii foresees about $80-million worth of construction in the islands this year—not much lower than the 1953 level of $87 million.

Included is an estimated $41.5 million that will be spent on hotels, commercial structures, federal projects and new streets. About half of this amount already has been awarded.

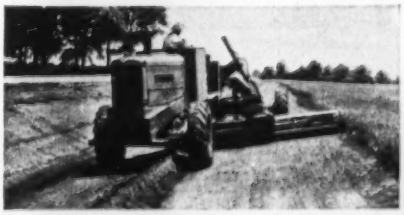
Other estimates indicate expenditure of $30 million on new dwellings and alterations and about $9 million in Territorial highway projects.

Like all Austin-Western Power Graders, the new Super "88" has tremendous climbing power in its front drivers.

Why AUSTIN-WESTERN power graders give you

More for Your Money

Ditch cuts around sharp corners — impossible with any other grader — are easy for the Austin-Western operator.



Shoulders as wide as 10 feet are finished without leaving tire marks.

Controlled Traction puts the grader in position to move a big windrow up the slope.

Getting down to cases, the main job for any self-propelled grader is to move a satisfactory amount of material with the blade, and keep traveling in the desired direction. *Traction* and *directional control* ... these are the fundamental problems of the designer. They are completely solved in Austin-Western Power Graders by exclusive all-wheel drive and all-wheel steer. They can never be completely solved in an ordinary front steer, rear drive grader.

All-Wheel Drive and All-Wheel Steer work as a team, each making the other doubly effective. All-Wheel Drive provides 30 per cent more Power-at-the-Blade. All-Wheel Steer provides all around maneuverability and extreme blade reach not approached by ordinary motor graders; *plus* Controlled Traction for moving more material farther and faster.

With power and directional control at both ends of the machine, riding banks is much quicker and easier with an Austin-Western.

Austin-Western

Power Graders • Motor Sweepers
Road Rollers • Hydraulic Cranes

BALDWIN BLH LIMA-HAMILTON

Construction Equipment Division

Manufactured by
AUSTIN-WESTERN COMPANY
Subsidiary of Baldwin-Lima-Hamilton Corporation
AURORA, ILLINOIS, U.S.A.

You can scarify right now

. . . grade 2 minutes later

with a Ford Tractor and Dearborn Equipment

Here's an idea that can help you save on labor—help you cut your equipment investment. It's the idea of using one Ford Tractor and low cost Dearborn Equipment to handle a great many light construction jobs. For example, take a . . .

DEARBORN SUBSOILER—This sturdy tool penetrates 18 inches deep to rip up hard-packed dirt and gravel. Priced low to start with, it saves you money on maintenance costs, too. Both beam and point are *reversible* for longer life. It's controlled by the Ford Tractor's hydraulic system. And, in less than 2 minutes you can detach the Dearborn Subsoiler *and* attach another piece of equipment, like the . . .

DEARBORN ECONOMY BLADE—This 6-foot blade can be used for dozens of grading, leveling and ditching jobs. It operates straight, angled to right or left, or reversed for backfilling. Its pitch can be changed, too. It lifts and lowers hydraulically—tilts from the tractor seat. And, because it has cutting edges on both top and bottom, it works twice as long before resharpening. Now you're ready for the . . .

DEARBORN INDUSTRIAL LOADER—After subsoiling and blading . . . jump right to loading. This loader really has the reach to load high-bodied trucks.

No longer is it necessary to have a separate, costly machine for each material-handling and earth-moving job. Now the Ford Tractor gives you an efficient, economical power unit that can readily be changed from one type of job to another. To find out more about this new way to handle your work, read the new 16-page booklet "Power Equipment for Your Profit Zone." For your free copy write to the address below.

Ford TRACTOR

TRACTOR AND IMPLEMENT DIVISION, FORD MOTOR COMPANY
Birmingham, Michigan

Dearborn EQUIPMENT

OBITUARIES

Harvey Wiley Corbett, architect, militant defender of the skyscraper when it was being attacked in the Twenties as a major contribution to congestion in large cities, died at his home in New York April 21, at the age of 81 years. Notable structures designed by him are the Bush Terminal Buildings and the Criminal Courts Building at New York, a group of municipal buildings for Springfield, Mass., and Bush House in London. His firm, Corbett, Harrison & MacMurray, was one of three architectural firms that designed the original buildings for the Rockefeller Center group in New York. Mr. Corbett served as chairman of the architectural committee for the World's Fair in Chicago in 1933 and six years later was chairman of the architects' advisory committee for the New York World's Fair. Mr. Corbett was born in San Francisco and was graduated from the University of California and L'Ecole des Beaux Arts in Paris. He had written extensively on architectural subjects.

Carl C. Ahles, retired principal engineer for highway location and design in the N. Y. State Department of Public Works, died April 22 in Albany, N. Y. He had been serving as a consultant to the New York State Thruway Authority since his retirement Jan. 1, 1953, from the Public Works Department. He joined the department in 1906 and was steadily promoted.

Michael M. Boland, 77, civil engineer, died April 20 at New Albany, Ind. From 1925 to 1943 he was city engineer of New Albany, and at one time was assistant engineer for Louisville, Ky. He was engineer in charge of construction of the dam and lock at Leavenworth, Ind. on the Ohio River.

Joseph H. Brearton, a civil engineer for the New York State Highway Department, died April 20 in Albany, N. Y. He attended Rensselaer Polytechnic Institute.

George Lewis Mylchreest, 69, of the consulting engineering firm of Mylchreest & Reynolds, Hartford, Conn., died there April 25. Previously he was with the engineering firm of Buck & Sheldon, Hartford. The first-named firm was founded in 1923. He was educated at Wesleyan University and the Massachusetts Institute of Technology, where he took his degree in civil engineering.

Three Hundred and Fifty Days

in a Man-Made Dust Storm

We create this dust storm in a sealed chamber. Within it, Brunson instruments are bombarded by fine pumice dust borne by a constant gale of wind. The instruments are rotated continuously during the test.

Even after 'round-the-clock exposure to such extreme conditions for eleven and a half months, the accuracy and operability of Brunson instruments is unimpaired.

What better proof can there be that Brunson dustproof, ball bearing construction offers the answer to your three big headaches with surveying instruments—binding caused by dirt, inaccuracy caused by wear between moving parts, and costly maintenance to overcome the effects of dirt and wear?

In Brunson instruments, dirt is sealed out, the lubricant sealed in, and wear is practically eliminated by the smooth ball bearing action in the spindle and telescope axis. They maintain lasting accuracy—without costly routine repair . . . loss of time on the job through malfunctioning . . . or adjustment to compensate for errors.

They cost no more—offer *lots* more. Write today. You'll be glad you did!

BRUNSON

The New Standard of Excellence

DISTRIBUTED EXCLUSIVELY BY

BRUNING

Everything for the Engineer and Draftsman

CHARLES BRUNING COMPANY, INC. • 4700 MONTROSE AVENUE • CHICAGO 41, ILLINOIS

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents June Materials, and Labor Prices will appear in June 10, 1954 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots Gravel, 1½ in.	Gravel, ¾ in.	Sand	CRUSHED STONE Per ton, carload lots 1½ in.	¾ in.	CRUSHED SLAG Per ton, carload lots, f.o.b. plant 1½ in.	¾ in.	CONCRETE BLOCK 8 x 8 x 16-in.: truckload del.: per block Sand grav.	Lt. wgt. agg.	CONCRETE Ready Mixed 1:2:4: over. 50 c.y., del.
	Paper	Bulk	Mortar										
Atlanta	$3.87	$3.56	$3.40	$2.075	$2.075	$1.83	$2.20	$2.20	$1.99	$1.99	$0.21	$0.21	$12.06
Baltimore	3.90	3.60	3.53	2.60‡*a*	2.60‡*a*	2.00‡*a*	2.75‡*a*	2.80‡*a*	2.65‡*a*	2.60‡*a*	.17	.17*a*	11.45
Birmingham	3.26	2.60*e*	...	2.53*n*	2.53*n*	2.23*n*	2.64	2.64	1.35	1.45	.165	.165	11.00
Boston	4.16	3.84	3.96	2.50*a*	2.50*a*	2.50*a*	1.50*a*	1.60*a*	.....	.....	.215	.245*a*	12.00*h*
Chicago	3.48	3.17	....	3.25‡*b*	3.25‡*b*	3.65‡*b*	3.25‡*b*	3.25‡*b*	2.25‡	2.25‡	.23	.23*b*	11.70/11.94
Cincinnati	3.76	3.55	3.55	2.10‡*c*	2.24‡*c*	2.24‡*c*	2.54‡*c*	2.54‡*c*	.....	.....	.21	.225*a*	10.95
Cleveland	N. A. in C. L.	3.19*e*	...	2.05*f*	1.85*f*	1.65	4.10*a*	4.10*a*	3.35‡	3.15‡	.....	.22	14.40*d*
Dallas	3.15	2.85	2.90	2.18	2.28	1.84	2.22	2.38	.....	.....	.11*c*	.2675	9.40
Denver	4.04	3.74	4.04	1.85	2.00	1.20	.....	.....	.....	.....	.23	.255*a*	10.50
Detroit	4.40	3.62	3.75	4.50‡*b*	4.50‡*b*	4.00‡*b*	3.75‡	3.75‡	4.25‡	4.25‡	.19	.20*a*	12.00*f*
Kansas City	3.52	3.22	3.30	1.85‡	1.85‡	1.50‡*a*	2.00‡*a*	2.00‡*a*	.....	.....	.21*a*	.24*c*	12.00*b*
Los Angeles	4.52*a*	4.00*a*	5.00	2.16*a*	2.36*a*	2.11*a*	2.11*a*	2.21*a*	.....	.....	.14*fm*	.248*m*	11.88*kh*
Minneapolis	3.95*d*	3.64*d*	3.56	2.55‡*ag*	2.55‡*ag*	1.50‡*ag*	2.75‡*ag*	2.75‡*ag*	.....	.....	.19*i*	.....	12.25*b*
Montreal	3.16*ac*	2.96*ac*	...	3.00*e*	3.00*e*	2.25	1.65*ij*	1.90*ij*	.....	.....	.20	.20*a*	10.55*ek*
New Orleans	3.35	3.02	3.33	2.32	2.32	1.82	....	....	1.05	1.25	.275	.....	12.90
New York	4.01	3.70	3.53	2.85*bk*	2.85*bk*	1.90*bk*	2.70*bl*	2.70*bl*	.....	.....	.....	.....	14.05*an*
Philadelphia	3.58/3.97‡	3.27/3.64‡	3.58/3.63‡	2.75‡*p*	2.75‡*p*	2.15‡*p*	2.30‡	2.40‡	2.00	1.90	.22/.25	.....	12.50*e*
Pittsburgh	3.47	3.19	3.47	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22*d*	.22	13.00
St. Louis	3.45/3.68*b*	3.09/3.35*b*	3.25/3.42	3.10*am*	2.90*am*	2.30/2.90*am*	1.70*j*	1.70*j*	1.50	1.50	.22	.28*ci*	11.40
San Francisco	3.67	3.27	...	2.07	2.07	2.17	2.22	2.22	.....	.....	.....	.28*cf*	12.15*c*
Seattle	4.80*a*	3.55*a*	5.95*h*	3.50‡*bm*	3.50‡*bm*	3.50‡*bm*	4.00‡*bm*	4.00‡*bm*	.....	.....	.25*i*	.3325*i*	12.30*e*

‡ Delivered. * Prices incl. dealers discount except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers discount not incl. *d* Dealers sell only LCL. *e* Truckload lots, destination price. *h* LCL. SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *o* 1-3 mi zone. *p* Add 10¢ for ea. add'l 3-mi zone.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5¼ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash *j* Less 1% for cash. *l* F.o.b. plant San Rafael. *m* F.o.b. yard
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cy. brackets. *d* 1-3 mi. zone. *e* 2,000 lb comp. *f* 2500 lb. comp. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause. *o* Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.75†	Buffington, Ind.	$2.70†	Steelton, Minn.	$2.80†	Muskegon, Mich.	$2.85†	Toledo, O.	$2.80†
Clinchfield, Ga.	2.75†	Independence, Kan.	2.65†	Leads, Ala.	2.60†	Saginaw, Mich.	2.75†	Milwaukee, Wis.	2.90†
Kingsport Tenn.	2.75†	Hannibal, Mo.	2.70†	Duluth, Minn.	2.80†	Wyandotte, Mich.	2.75†	Green Bay, Wis.	2.90†
West Des Moines, Iowa	2.80†	Northampton, Pa.	2.75†	Hudson, N. Y.	2.75†	Buffalo, N. Y.	2.85†	Ironton, O.	2.75†
Nazareth, Pa.	2.75†	Universal, Pa.	2.80†	Alpena, Mich.	2.65†	Oswego, N. Y.	3.00†	Montreal City	2.66
Bath, Pa.	2.75†	Waco, Tex. (+ 10¢ tax)	2.60†	Detroit, Mich.	2.75†	Cleveland, O.	2.90†	W. Winfield, Pa.	2.80†

† *Prices to hold for second quarter of* 1954.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration Tank car	Drums	CUTBACK ASPHALT Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION (Quick-break) Per gal. Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095*w*	$0.185*w*	$0.105	$0.115	$0.225
Baltimore	150.00‡	75.00‡	.....	21.00*i*	.....	.0651*i*	0.1751*i*	.09*iw*	.18*iw*	.09*i*	.095*i*	0.185*i*
Birmingham	.....	49.50*i*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00*a*	23.00*a*	22.00*av*	22.00*av*	.....	.....	.09*a*	.105*a*	.22*a*
Chicago	155.00‡	85.00‡	3.60/3.65‡*j*	19.85*b*	29.85*b*	18.85*bv*	28.85*bv*	.094*bw*	.1740*bw*	.074*b*	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	65.00*d*	5.03*g*	23.00*4*	.....	23.00*4*	.....	.1025*4w*	.....	.11*4*	.18*4*	
Dallas	*e*	40.00	*e*	24.05	43.09	.1016	.2103	27.09	47.87	.098	.1014	.2128
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	98.00	.....	28.41	.....	28.41*v*	.....	.1188*w*	.....	.0792	.....	.211
Kansas City	*e*	*e*	*e*	15.00*cl*	.....	.06	.....	.065*cw*	.....	.055*c*	0.10	.....
Los Angeles	*e*	.....	*e*	16.00*dmx*	.....	16.00*dnx*	.....	18.00*dx*	.....	17.00*dv*	.0825*j*	.1725*j*
Minneapolis	.....	.....	2.97*h*	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montreal	.....	*e*	*e*	27.00*n*	39.60*n*	.135*n*	.198*n*	16.50*nu*	20.90*nu*	.132*n*	.184*ns*	.225*ns*
New Orleans	.....	.....	.....	17.50*e*	....*o*	17.50*ev*	....*o*	.085*ew*	....*o*	.0825*s*	.085	.....
New York	.....	.....	2.75*f*	23.89*q*[CD]	44.32*q*[D]	22.89*nt*[CD]	43.57*nt*[D]	.1023*w*[CD]	.1889*w*	.....	.1023[CD]	.1918[D]
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.095*u*	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00	40.00	.095	.10	.22
St. Louis	.....	.....	.....	18.66*f*	.....	.1758	.....	.084/.0865*w*	.....	0.15	.10	.....
San Francisco	.....	55.00*e*	.....	17.50*q*	33.00*qp*	17.50*ykv*	33.00*ykv*	20.00*q*	37.50*q*	18.75*n*	.085*y*	
Seattle	.....	.....	.....	17.50*h*	38.00*h*	17.25*hv*	.....	20.00*h*	.....	19.75*hv*	.085*h*	.095*v*

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *c* 2½ x 8¼ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3" *h* 2" int., 8¢ treat. *i* 3 x 3½ x 8½. *j* 2½", 6lb. tr.
ASPHALTS: *a* Price at plant, Everett, Mass *b* F.o.b. refinery Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40/80 penetr. *n* Tax incl. *o* Drums not avail. Shipped in steel bbl. *q* 40/85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85/200 penetr. *u* Per 100 gal. * Per ton. *w* Per gal. *x* Also tank trucks *y* F.o.b. Oakland. [4] F.o.b. refinery, Cleveland. [B] F.o.b. Norco, La. [C] Bulk. [D] Prices based on transporting to Manhattan via truck.

(Continued on page 75)

"17 floors in 13 days and here's how we did it!"

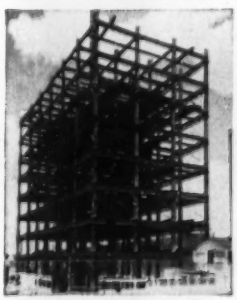
says H. A. Padgett, Jr., partner in BMFP Construction Co. Lubbock, Texas

Great Plains Life Insurance Company Building
Architect-Engineer: David S. Castle Company, Abilene, Texas

Describing the important function of Cofar —combined form and reinforcement—in constructing the Great Plains Life Insurance Company building, Mr. Padgett says, "We started concrete floor work on Monday, September 7. After seven working days we had completed 7 floors and in the next 6 days, 9 more floors and the roof. The schedule shows 17 floors completed in 13 working days. We couldn't possibly have done the job that fast without Cofar!"

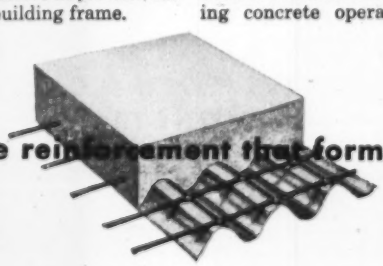
Cofar deep-corrugated steel units (with transverse temperature wires welded across the corrugations) perform the dual job of reinforcing and forming concrete slabs. Cofar eliminates the need for wood forms, saves weeks in building time, speeds occupancy. For more information, estimates or costs on *your* building project, contact home or district offices, attention Dept.ER-A.

December 7. Outside work virtually completed! Concrete floors in place more than two months! By using Cofar units which serve as tight, incombustible forms for wet concrete, BMFP Construction Company avoided the use of wood forms, eliminated the placing, detailing and tieing of long, straight and bent rebars. Adds Contractor Padgett, "The typical Cofar span was about 10′ . . . a very simple, economical operation!" Result: a safe, high-strength floor. And Cofar is equally suited to steel or concrete frame construction, requires no special procedure.



June 29 photo of Great Plains Life Insurance Co. Building shows partial erection of structural steel. Cofar placing followed *immediately*. Cofar units weigh only 2 lbs. per sq. ft., are bundled for individual bays, arrive at job site cut to fit building frame.

August 24. Steel framework completed! Note that Cofar has already been placed on 13 floors providing a safe, unobstructed working platform for construction activities. Trades move in, complete their work without delaying concrete operations.



the reinforcement that forms

COFAR

GRANCO STEEL PRODUCTS COMPANY

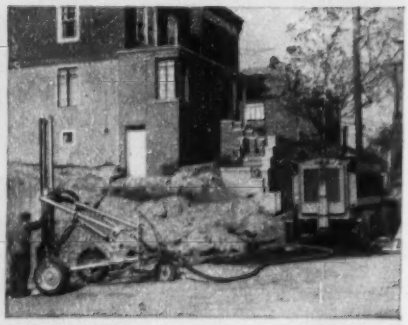
Also manufacturers of Corruform, Tufcor, and Roof Deck

Subsidiary of GRANITE CITY STEEL COMPANY

Main Office: Granite City, Illinois • District Offices: Dallas • St. Louis
Kansas City • Chicago • Minneapolis • Tulsa • Memphis • Houston

Le Roi Air Power helps beef up your profits

Le Roi-CLEVELAND Sinkers — with their strong rotation, powerful blow, fast drilling speed, and easy holding, have what it takes to drill more feet per shift. Shown is the 18-lb. H-22 in a stone quarry. Le Roi-CLEVELAND Sinker sizes range from 18 to 80 lbs.



Le Roi-CLEVELAND DR-30 Wagon Drill — Air-powered by a 600-Airmaster, this wagon drill puts deep holes down faster, with less air than any other wagon drill available. Its 4-inch bore, Le Roi-CLEVELAND Drifter has strong rotation, powerful hole-cleaning ability and high drilling speed with big bits. For shallow holes, the lightweight Le Roi-CLEVELAND DR-34 is available.

Le Roi-CLEVELAND Paving Breakers — really pack a wallop. They are available in sizes from 18 to 80 lbs. Their powerful force of blow is ideally suited for the toughest concrete. This feature, plus easy handling, makes them a favorite with operators who like to get a lot of work done. A protective air cushion in the front end keeps maintenance costs to a minimum.

Le Roi-CLEVELAND SB30 Pipeline Rig — This adjustable, multiple drill rig, consisting of four, 4-inch, air-feed drifters hung from a side-boom tractor, was pioneered and developed by Le Roi-CLEVELAND for trenching in hard rock. Because of its flexibility and drilling power this rig is also ideal for cutting costs on road jobs or wherever you have big rock cuts. On this road job in Pennsylvania the SB30 drilled 275-300 feet per hour.

LE ROI GIVES YOU MORE FOR YOUR MONEY!

More air power!
More footage!
More profits!

Le Roi Airmaster running 2 Le Roi-CLEVELAND Model 52 80-lb. breakers. Airmasters are available in 85, 105, 125, 185, 210, 250, 365, and 600-cfm sizes; gas or diesel.

. . . that's why it pays you to use Le Roi Airmaster Compressors and Le Roi-CLEVELAND Air Tools

YOU'VE probably said to yourself, "What equipment do I need to meet competitive bidding + how am I going to improve my profit picture?"

Well, Le Roi has the answer, when it comes to your air power needs. We build the widest range of portable air compressor sizes and models available. You have 8 sizes and 14 models to choose from. You can pick the machine exactly suited to your job requirements — the machine that does the most work at the least cost to you.

And so that you can get the most out of the high efficiency that's designed and built into every Le Roi Airmaster, we recommend the use of Le Roi-CLEVELAND Air Tools. These tools — sinkers, breakers, drifters, tampers, wagon drills, spades — all have their own exclusive valve design. That's why they are easy to hold, why they have the right kind of blow, why they squeeze the most out of Le Roi air power, why they get more work done.

Yes, Le Roi can help you beef up your profits. Find out for yourself what Le Roi can do for you. See your Le Roi distributor or write us.

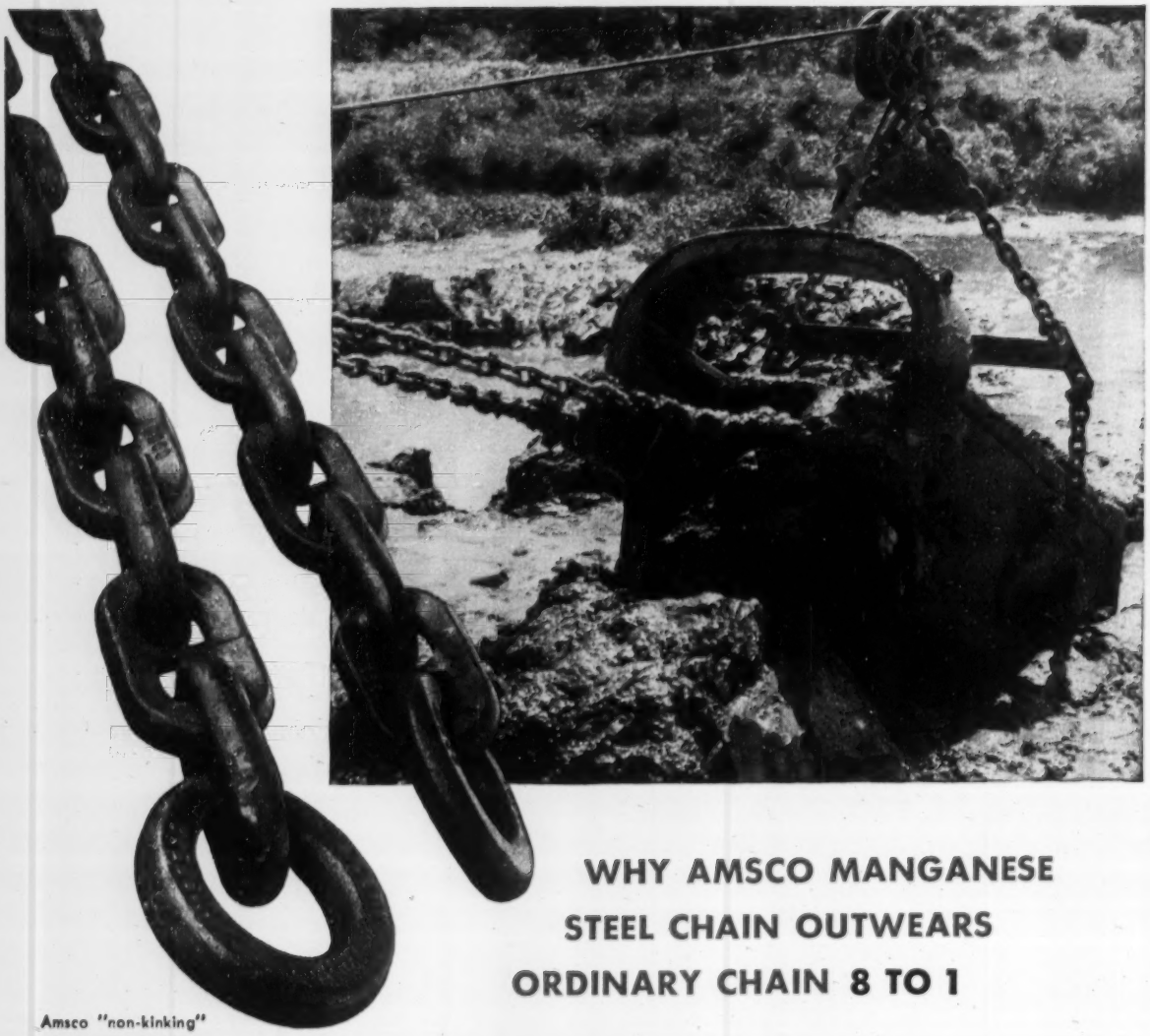
LE ROI COMPANY MILWAUKEE 14, WISCONSIN

A Subsidiary of Westinghouse Air Brake Co.

Plants: Milwaukee • Cleveland—Greenwich—Dunkirk, Ohio • Coldwater, Mich.

Nation-Wide Sales-Service Network

ALABAMA: Birmingham, Mobile — ARIZONA: Phoenix — ARKANSAS: Little Rock — CALIFORNIA: Bakersfield, Long Beach, Los Angeles, San Francisco — COLORADO: Denver, Grand Junction — CONNECTICUT: Hartford — FLORIDA: Jacksonville, Miami, Tampa — GEORGIA: Augusta, Decatur — IDAHO: Boise, Idaho Falls, Twin Falls — ILLINOIS: Chicago — INDIANA: Indianapolis — IOWA: Cedar Rapids, Des Moines, Waterloo — KANSAS: Great Bend, Kansas City, Pratt, Wichita — KENTUCKY: Lexington, Louisville — LOUISIANA: New Orleans, Shreveport — MAINE: Augusta — MARYLAND: Baltimore, Hyattsville — MASSACHUSETTS: Hyde Park, Newton Highlands, Worcester — MICHIGAN: Detroit, Grand Rapids — MINNESOTA: Duluth, Minneapolis — MISSISSIPPI: Jackson — MISSOURI: Joplin, St. Louis — MONTANA: Billings, Great Falls, Kalispell, Missoula — NEBRASKA: Omaha — NEW HAMPSHIRE: Manchester — NEW JERSEY: Cranford, Kingston — NEW MEXICO: Albuquerque — NEW YORK: Albany, Binghamton, Buffalo, Long Island City, Newburgh, Rochester, Saugerties, Syracuse, Whitesboro, Woodside (L.I.) — NORTH CAROLINA: Charlotte — OHIO: Cincinnati, Cleveland, Columbus, Dayton, Toledo — OKLAHOMA: Oklahoma City, Tulsa — OREGON: Portland — PENNSYLVANIA: Bethlehem, Harrisburg, Philadelphia, Pittsburgh — RHODE ISLAND: Providence — SOUTH CAROLINA: Columbia — SOUTH DAKOTA: Rapid City, Sioux Falls — TENNESSEE: Chattanooga, Knoxville, Memphis, Nashville — TEXAS: Dallas, El Paso, Houston, Lubbock, San Antonio — UTAH: Salt Lake City — VIRGINIA: Richmond, Roanoke — WASHINGTON: Seattle, Spokane — WEST VIRGINIA: Clarksburg, South Charleston — WISCONSIN: Milwaukee — WYOMING: Casper.



Amsco "non-kinking" manganese steel chain, one of many fine chains from which to choose.

WHY AMSCO MANGANESE STEEL CHAIN OUTWEARS ORDINARY CHAIN 8 TO 1

Amsco manganese steel chain resists impact and abrasion, because it is cast from the toughest steel known. Each link has extra metal on the link sides and ends where most of the abrasion occurs.

It work hardens right on your job. Tough service will develop a link hardness up to 500 Brinell. In addition, it will acquire a glasslike polish that helps eliminate life-shortening abrasion.

It has special link design to help keep abrasives out of the link-bearing area, thus materially extending service life and minimizing repairs and down time.

It is designed for specific jobs. A complete line of carefully designed Amsco manganese steel chains are available for dragline, bucket elevating, clinker drag, logging, etc.

Don't buy just any chain . . . specify Amsco manganese steel chain made from the toughest steel known. For information, write Amsco Division, Chicago Heights, Illinois.

AMERICAN Brake Shoe COMPANY

AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Ill.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates †	Track Bolts
Birmingham Area	$4.10	$4.10	$4.15	$8.90	....	$86.50	$104.00	Not	$5.275	$7.05	$5.125	....
Chicago Area	4.10	4.10	4.15	8.90	$4.925	86.50	104.00	avail-	5.275	7.05	5.125	....
Pittsburgh Area	4.10	4.10	4.15	8.90	4.925	86.50	104.00	able	5.275	7.05	5.125	$11.00
Buffalo Area	4.10	4.10	4.15	8.90	4.925	86.50	104.00	....	5.275	7.05	5.125	11.00
Cleveland	....	....	4.15	8.90	4.925	.....	.....	....	....	....	....	11.00
Youngstown Area	....	....	4.15	....	....	.....	.....	....	....	7.05	....	....
Geneva	4.10	4.10	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	....	....	4.925	.....	.....	....	....	7.05	....	....
Pueblo	4.30	4.70	4.75	....	....	....	95.00	....	5.275	7.05	5.125	11.00

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	Rail steel	EXPANDED METAL LATH‡ Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq. ft., carload lots fob mill
Atlanta	$7.31	$7.11s	$7.11s	$38.00‡	$42.00‡	
Baltimore	6.98	6.91j	....	42.00	45.00	
Birmingham	6.35	6.15t	6.15t	50.00p	55.00p	
Boston	7.06a	7.22	7.22	38.50	42.50	
Chicago	6.46	5.75gu	5.75gu	43.00‡	50.00‡	
Cincinnati	6.93ak	6.91rr	....	39.00ms	43.00ms	
Cleveland	6.79	5.61c	....	36.50‡	40.50‡	
Dallas	9.05	7.25	7.25	49.00	52.00	
Denver	7.95	7.30c	....	48.00n	59.00m	
Detroit	6.91	7.04dw	....	50.50	54.50	
Kansas City	7.05a	7.27	....	43.50	47.50	
Los Angeles	7.35fd	6.85	....	51.00	57.00	
Minneapolis	6.92d	7.53b	7.53b	34.50	38.50	
Montreal	7.25–8.00sC/9.20A	6.05i	6.05i	46.00a	51.00a	
New Orleans	....	6.15akz	....	66.00	60.00	
New York	7.20	7.01y	7.01y	38.50ms	44.00ms	
Philadelphia	6.42	6.67	....	38.00‡	42.00‡	
Pittsburgh	6.40	6.40z	....	37.60	39.60	
St. Louis	6.86a	6.30c	6.30c	55.00f	56.00f	
San Francisco	7.25	6.85j	....	40.50	43.50	
Seattle	4.85e	6.20kj	....	51.00nr	57.00nr	

EXTRAS, per cwt—*Quantity: less than 700#, +50¢; 700-1499#, +25¢; 1500-7999#, +10¢; *Size: #2 +$2.20; #3 +$1.10; #4 +80¢; #5 +62.5¢; #6, #7 +45¢; #8, #9, #10 +30¢; *Bending: heavy, +80¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job); *Spirals (unassembled into fab. unit): hot roll. rods, +$1.75; cold drawn wire, +$2.75; *Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–500 tons, +50¢ but not over $4,500; 20–200 tons, +60¢ but not over $2000; 5–20 tons, +70¢ but not over $240; under 5 tons, +85¢ but not over $70 *Design only: +60¢

Quantity extras, per cwt: under 100#, +$4; 100-399#, +$2; 400-999#, +85¢; 1000-1999#, +20¢; 2000-9999#, base price; 10,000-19,999#, +(−) 20¢; 20,000-39,999#, −40¢; 40,000# and up, +(−) 50¢

WELDED FABRIC REINFORCING
Per 100 sq. ft., carload lots fob mill
4 × 16 in., No. 5 & 10 wire—Joliet, Ill., Donora, Pa., Monessen, Pa. $3.08
4 × 12 in., No. 3 & 12 wire—Joliet, Ill. Donora, Pa., Monessen, Pa. $2.02
6 × 6 in., No. 6 & 6 wire—Joliet, Ill., Donora, Pa., Monessen, Pa. $3.23

*‡ Delivered *a 2000–9999# *b 10,000–15,999#, fob city *c 20 tons or over *d 10,000–19,999# *e fob plant *f incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more *q 4# per sq. yd. *r 2% off for cash *s add 2.5¢ switch *t add 5¢ switch, 15¢ del. *u add 6.25¢ switch *v add 15¢ del. *w add 20¢ del. *x add 5¢ switch *y add 30¢ del. *z add 10¢ del. *A American made *C Canadian made † Number system replaces inch system of classifying bar sizes, effective this issue. New system is based on number of eighth inches in diameter of bar.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$101.00	$1.45	$2.42	$ .545	$1.27	$4.82	$12.925	$248.00	$356.00	$0.90m	$3.40m
Baltimore	121.50	1.45	2.42	.578	.999	4.095e	11.1725	178.20	274.80	.95	2.60
Birmingham	103.00	1.45	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25m	2.75m
Boston	122.00	1.47	2.20	.563qra	1.0665qrt	4.41qrt	11.90qrt	187.80r	289.20r	1.62mq	3.95mq
Chicago	107.00	1.45	2.20	.70m	1.35m	5.62m	13.50m	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.47	2.29	.581t	1.120t	4.41t	11.375t	164.40	284.10	.80m	2.95m
Cleveland	108.00	1.47	2.29	.462s	.945s	3.69s	10.04s	158.00m	245.65m	.82m	3.10m
Dallas	112.00	1.47	2.54	.439	.790	4.006	9.176	.....	.....	.49	1.60
Denver	115.00	1.53	2.54	.45n	.78n	3.48n	....	.....	.....	.74m	2.50m
Detroit	108.00	1.47	2.29	.75	1.45	5.75	15.50	230.00m	350.00m	.86	3.47
Kansas City	113.00	1.47	2.29	.53	.945	3.87	10.60	250.00	480.00	.80	3.25g
Los Angeles	126.35	1.53	2.29	.621	1.261	5.211	14.891	228.201	348.901	.95	2.78f
Minneapolisw	112.00	1.49	2.42	.72mo	1.32mo	5.32mo	....	.....	.....	1.38A	3.93A
Montreal	110.00	....	....	1.07u	1.73u	5.52u	8.93u	.....	.....	1.17A	3.11f
New Orleans	101.50	1.45	2.42	.53	.965	5.13	....	300.00p	500.00p	.65	2.29
New York	111.35	1.47	2.20	.61	1.22	4.82	12.81	.....	.....	1.15	3.00
Philadelphia	110.00	1.45	2.20	.65	1.25	4.95z	12.85z	300.00‡	350.00‡	1.60A	3.95A
Pittsburgh	110.00	1.47	2.29	.468m	.864m	3.26m	8.71m	152.00	244.00	1.05A	2.50A
St. Louis	112.00	1.45	2.29	.58	1.03	4.22	9.80	180.00f	380.00f	1.20af	2.85Af
San Francisco	127.00	1.53	2.29	.61d	1.41d	5.78d	14.32d	235.00f	392.00f	.73	3.02
Seattle	122.00	1.54	2.42	.51b	.91b	....	....	150.00c	.....	.85k	2.75k

*‡ Delivered *a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b Extra strength ASTM C 200-44T *c 4-in., $90 *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76-41 *h reinforced, ASTM C 75-41 *i reinforced, ASTM C 76-37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13-40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60-1941 specs. used *v standard strength *w 6 in., $1.67 per ft., Class 150, CL, fob truck

*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnotes

	2½ & 3 in. Butt Weld‡ Galv. %	Black %	3½ to 6 in. Lap Weld‡ Galv. %	Black %	Continuous‡ 8 in.	10 in.	12 in.
Mill							
Lorain, Ohio	36.75	20.50	27.75u	11.00u			
Alquippa, Pa	36.75	20.50	22.75u	6.00			
Sparrows Pt., Md.	34.75	18.50	....	....			
Benwood, W. Va.	36.75	20.50	26.50t	9.75t			
Youngstown, O.	36.75	20.50	26.75ub	10.00u			
Indiana Harbor, Ind.	35.75	19.50	....	....			
Sharon, Pa	36.75	20.50	27.75u	11.00u			
Wheatland, Pa	36.75	20.50	26.50u	8.25d			
Erie, Pa	36.75	18.50b	26.50d	8.25d			
Fontana, Calif.	23.75b	10.00b	14.75ab	0.50ab			

† Threaded and coupled ‡ 3½ to 4½ in. diameter, ends plain; 5 in. and larger, plain ends, bevel or upset for welding. *a 5 and 6 in. *b 4 in.

* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (based on approx. $200 per net ton): *Butt Weld* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58¾¢; 3 in., 76½¢. *Lap Weld* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: *Butt Weld* — 1 in. black, + 32.75, galv. + 61.0; 1¼ in. black, + 32.75, galv. +60.50, 1½ in. black, + 29.25 galv. + 56.75; *Lap Weld* — 2½ in. to 3 in. black + 33.50 galv. + 59.5; 4½ in. to 6 in. black + 30.50 galv. + 54.75. Add freight rates plus 3% transportation tax to get destination price.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft.

(Prices in italics)

		1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 S2S	6x12 S2S	12x12 S2S	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 S2S	LONG LEAF Y. P. Merchantable grade up to 20 ft. 12x12 S2S	PLYWOOD Rail freight increment (See note for base price) ¼"	PLYWOOD Rail freight increment (See note for base price) ¾"
Atlanta	†	$77.00	$80.50	$71.50	$74.00	$77.50	$81.00	$79.00	.....	.....	.....	.....	$22.32	$27.24
Baltimore	*	84.00	86.00	77.50	77.50	77.50	82.00	112.00	.....	.....	$153.00	$156.00	25.92*	31.60*
		108.00g	*108.00g*	*91.00g*	*91.00g*	*91.00g*	*91.00g*	*96.00*	*$106.00*	*$106.00*				
Birmingham	†	80.50	82.50	70.50	80.50	83.50	85.50	95.50	.....	.....	115.50	155.50	21.78	26.58
		78.50	*78.50*	*70.50*	*70.50*	*70.50*	*69.50*	*78.50*	*78.50*	*78.50*	.....	.....		
Boston		95/108a	100/112a	92/104*	93/108a	100/112a	104/112a	.....	.....	.....	.....	.....	25.92*	31.60*
	‡	*94.00**	*94.00*	*96.00*	*96.50*	*97.00*	*97.50*	*102.00*	*105.00*	*106.00*				
Chicago	**	95.00	98.00	86/87	95.00	97.00	100.00	104.00	.....	.....	132.00	132.00	22.45*	27.37*
		97.00	*97.00*	*99.00*	*101.00*	*102.00*	*104.00*	*110.00*	*110.00*	*110.00*				
Cincinnati	*	89.50	95.00	79.75	88.50	95.00	97.25	110.75	.....	.....	132.00	132.00	25.00*	30.48*
		108.50	*105.50*	*107.50*	*106.00*	*107.00*	*106.00*	*152.00*	*152.00*	*152.00*	.....	.....		
Cleveland	**	88.00	90.00	85.00	91.00	95.00	98.00	.....	.....	.....	.....	.....	25.37*	30.93*
		.....	.....	*98.00*	*99.00*	*99.00*	*99.00*	*109.00*	*109.00*	*109.00*				
Dallas	††	62.00	70.00	60.00	60.00	60.00	60.00	130.00	.....	.....	115.00	115.00	18.72	22.80
Denver	*	*Not in stock*		*103.00*	*107.00*	*105.00*	*106.00*	*122.00*	*155.00*	*140.00*	.....	.....	13.92	16.98
Detroit	‡	108.00	112.00	100.00	108.00	113.00	115.00	.....	.....	.....	.....	.....	25.00*	30.48*
		91.50	*95.50*	*101.50*	*102.25*	*99.25*	*98.00*	*108.50*	*118.00*	*118.00*				
Kansas City	*	105.50	105.50	105.50	103.00	106.00	.....	.....	.....	.....	.....	.....	16.56	20.16
		109.00	*109.00*	*109.00*	*109.00*	*109.00*	*112.50*	*155.00*	*155.00*	*155.00*	.....	.....		
Los Angeles	‡	*95.00*	*95.00*	*95.00*	*95.00*	*95.00*	*95.00*	*125.00*	*128.00*	*128.00*	.....	.....	16.61*a‡	20.25*a‡
Minneapolis	#	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	.....	.....	19.89*	24.25*
Montreal	ab	88.00	97.00	88.00	88.00	100.00	.....	.....	.....	.....	.....	.....	.....	.....
		110.00	*110.00*	*110.00*	*110.00*	*110.00*	*110.00*	*108.00*	*108.00*	*108.00*	.....	.....		
New Orleans	†	100.00	100.00	92.50	85.00	90.00	94.00	118.00	.....	.....	150.00	148.00	18.72	22.80
	†	*90.00*	*101.00*	*109.50*	*109.50*	*107.50*	*107.25*	*107.50*	*117.50*	*107.50*				
New York	‡	105.00	108.00	110/113	115/120	115/120	120/125	150/160	.....	.....	220/250	220/250	25.92*	31.60*
		.....	.....	*Range from $115.00 to $120.00*				*155/160*	*145/155*	*145/155*			.....	.....
New York	**	81.00	83.00	76.00	83.00	85.00	86.00	116.00	.....	.....	190.00	190.00	.....	.....
		89.00	*90.00*	*98.00*	*98.00*	*94.00*	*94.00*	*105.00*	*114.00*	*114.00*				
Philadelphia	‡			**Range from $110.00 to $127.00**				110/127	.....	.....	210/220	210/220	25.92*	31.60*
				Range from $120.00 to $150.00				*130/140*	*130.00*	*130.00*				
Pittsburgh	†			**Range from $95.00 to $100.00**				110/120	.....	.....	110/120	115/125	25.92*	31.60*
				Range from $110.00 to $120.00				*130/140*	*140/155*	*140/155*	.....	.....		
St. Louis	#c	101.00e	103.00e	97.00d	105.00d	111.00e	119.00e	.....	.....	.....	.....	.....	18.72	22.80
		.....	.....	*109.50f*	*115.75e*	*115.75e*	*116.50e*	*142.00e*	*147.00*	.....	.....	.....		
San Francisco	A†	*84.00*	*86.00*	*68.00*	*82.00*	*82.00*	*80.00*	*80/85*	*80/85*	*80/85*	.....	.....	12.22*a	14.91*a
Seattle	†	*78.00*	*78.00*	*76.00*	*78.00*	*78.00*	*78.00*	*85.00*	*85.00*	*85.00*	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. †† Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. and.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common. *n* ¼ #1, ¼ #2 & ¼ #3. *A* Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¼", $152.00; on ¾", $173.00. Exterior plyform ¼" $171.00, ¾" $194.00. For other centers add rail freight increment from table on proper size Oiling and edge sealing charges included. *a* Lower rate by water shipment *b* 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from Jobbers list, Feb. 1, 1950a Single or Double Thickness A quality	WINDOW GLASS Discounts from Jobbers list, Feb. 1, 1950a Single or Double Thickness B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2365
Baltimore	78%d	80%d	.2365
Birmingham	83%	83%	.1840
Boston	77–10%	77–10%	.2365
Chicago	76%	76%	.2365
Cincinnati	76%	76%	.2365
Cleveland	76–10–10%	76–10–10%	.2765
Dallas	78%	78%	.2440
Denver	79%	79%	.2415
Detroit	78–10–10%	78–10–10%	.2365
Kansas City	80–10%	80–10%	.2415
Los Angeles	73%	78%	.2390
Minneapolis	75–10%	75–10%	.2415
Montreal	40–5%bc	40–10–5%b	21.35A
New Orleans	78%	77%	.2415
New York	80–10%	80–10%	.3975g
Philadelphia	78%	80%	.2365
Pittsburgh	80%	80%	.2090
St. Louis	80–10%	80–10%	.2415
San Francisco	70%	70%	.2365
Seattle	73%	76%	.2390

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U.S.; $1.75 per 100 lbs. higher in Canada.

Glass: *a* Jobbers' list price per box, 14 x 20, as, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per ton. A F.o.b. Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.10.

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 – .1965	.2215–.229	.2415–.249
Rocky Mtn. States	.189 – .2015	.2215–.229	.2415–.254
Pacific N. W. States	.1865–.199	.219 – .2315	.239 – .2515
Pacific S. W. States	.184 – .1915	.2165–.219	.2365–.2415

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	.....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.54	.....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.58	.....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	.....	.....
13-in.— 3-ft. from butt	8-in.	91 to 100-ft.	.....	.....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	.....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.— 2-ft. from butt	8-in.	80 to 85-ft.	.83/.93	.94
14-in.— 2-ft. from butt	8-in.	85 to 89-ft.	.....	1.00
14-in.— 2-ft. from butt	8-in.	90 to 100-ft.	.....	1.03

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots;

		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak††	.....	.....	.....	.....
	Pine	.....	.....	.....	.....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood:	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	.....	3.40a	.....	4.30/4.40a
Los Angeles	Douglas Fir	.....	.....	.....	.....
	Redwood	.....	.....	.....	.....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	2.35	.....	3.10	.....
	Red Oak	2.20	2.75a	3.00	3.26a
	Sap Pine or Cypress	.....	2.60a	.....	3.11a
San Francisco	Douglas Fir	2.15e/	3.15e/	2.90b/	4.25ea/
Montreal	Birch or Maple	....h	....h	....h	....h

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb, f.o.b. works	.095
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	27.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb, dense	1.75
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.35

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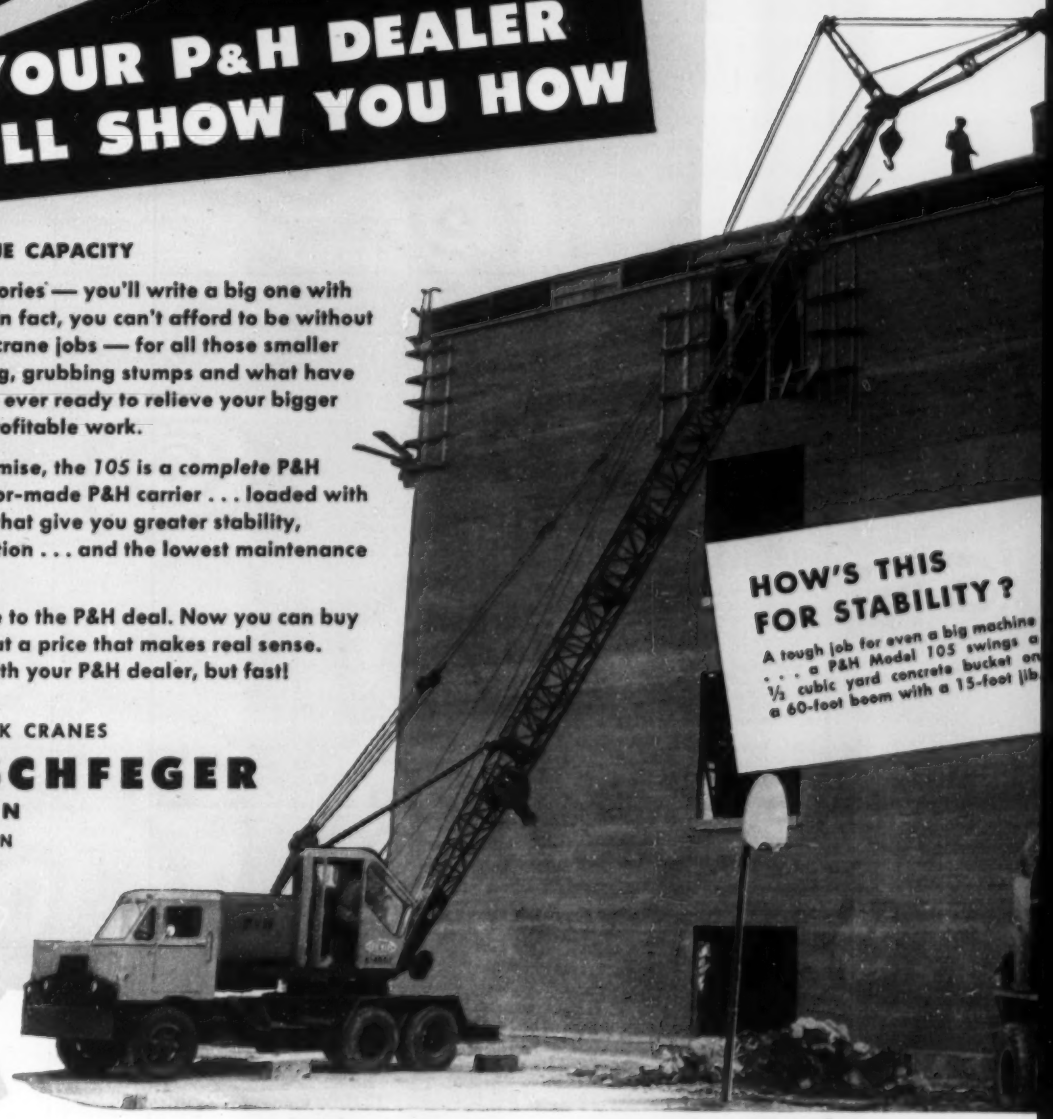
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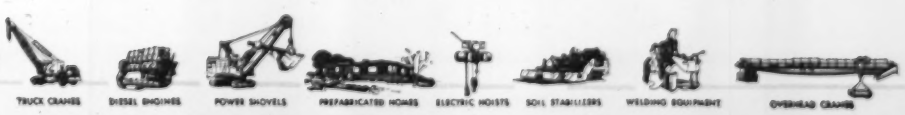


STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE — PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.00	$327.00	$342.00	$381.00	$27.38	$27.38	$19.00	$17.50	$.....
Baltimore	186.00	198.35	372.00	421.50	549.00	627.00	36.00*k*	41.00*k*	32.00	21.50	.....
Birmingham	126.00*p*	136.00*p*	.....	284.00*p*	.....	.....	26.50*ff*	32.00*gg*	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	383.25†	.....	.....	36.85*p*	39.85*p*	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	26.00	28.00	30.80	26.00	.....
Cincinnati	185.00*f*	198.00*f*	260.00*fdd*	.....	.....	.....	45.00*j*	46.00*f*	26.00*f*	26.00*f*	.....
Cleveland	170.00**	181.00**	.....	.....	.....	.....	34.50	34.50	28.25	23.25	32.00*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	32.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	41.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	130.00	138.00	259.00	.....	317.25	362.60	37.75*cc*	36.75*cc*	33.60	28.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	28.50	.....	32.00	26.00	28.50
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	27.50‡	.....	34.00	34.00	35.00
Minneapolis	175.00*p*	196.00*p*	407.00*p*	196.00*p*	.....	.....	35.00*sp*	45.00	39.00*bbe*	29.00*bbe*	41.00*bbde*
Montreal	165.00*aq*	181.00*au*	325.00*au*	230.00	248.00*	.....	39.50	46.00	34.80	22.00	13.75*u*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	147.30*h*	157.10*h*	216.00*ch*	238.10*hn*	.....	.....	38.00	.....	36.00	32.00	.....
Philadelphia	145.30	155.00	290.60	348.70	.....	.....	30/34	35/42	25.00	23.00	2.97
Pittsburgh	118.00	126.00	192.00	224.00	286.00	328.00	36.00	46.00*y*	25.00	23.00	2.97*m*
St. Louis	142.00*cc*	160.00*cc*	319.00*cc*	465.00*cc*	439.00	621.50	40.00*al*	38.50*s*	.90*aaa*	.75*aaa*	1.25*aaspss*
San Francisco	156.85*a**	177.10*a**	235.30*dda**	.....	.....	.....	37.00	.....	26.60	26.60	2.65*m*
Seattle	228.00*ee*	230.00*ee*	.....	240.00*eew*	.....	.....	34.00*s*	49.00*s*	42.00*sAA*	37.50	3.90*mAA*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverised hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck ots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11¼. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. ‡ F.o.b. yard. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases In oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES: Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$16.75	$28.275	$3.26	$3.51	$3.01	$2.74	3.01	$2.98	$0.405	$39.75
Baltimore	16.50	27.90	2.75	4.25	3.35	2.66	4.43	4.43	.47	45.56
Birmingham	16.75	28.275	3.90	3.40	....	2.93	2.93	2.93	....	42.00*ee*
Boston	16.50	27.90	....	....	....	2.98*gg*	2.77*oo*	2.77*oo*	.42*g*	48.50*g*
Chicago	16.50	27.90	....	....	....	3.29‡*u*	3.29‡*o*	3.29‡*o*	38.00‡*bbr*	48.00‡
Cincinnati	16.50	27.90	....	....	....	2.50	2.585	2.585	.46*y*	47.86
Cleveland	16.50	27.90	2.27*pgg*	2.59*gg*	2.57*gg*	2.80*q*	2.50*o*	2.50*o*	40*y*	40.70*hh*
Dallas	16.75	28.65	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.38	58.50*hh*
Denver	17.00	28.40	3.29	5.15	3.04	2.66	2.61*o*	2.61*o*	.43*ff*	47.00
Detroit	16.50	27.90	2.35	3.25	2.50	2.97	2.50*f*	2.50	.50	44.00
Kansas City	16.50	28.65	....	2.71*ys*	2.65	3.40	3.20*o*	3.20*o*	.43	53.00
Los Angeles	16.50	28.15	3.30*	4.50*	4.20*	2.63*	1.70**	*l*	.58*	*l* *
Minneapolis	16.50	29.88/28.02	....	....	....	2.58*idd*	2.35*hidd*	2.35*hidd*	.44*idd*	42.00*r*
Montreal	....	20.95	2.95‡*ll*	4.05‡*ll*	3.25‡*ll*	4.00‡	3.65*ff*	3.65*t*	1.06‡*t*	3.30‡*t*
New York	16.50	27.90	....	....	....	2.79*ff*	2.50*ffo*	2.50*ffo*	.44*ffz*	42.00*
Philadelphia	16.50	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	16.50	27.90	2.65	2.85	3.15	2.95	3.00*o*	3.00*o*	.38	45.00
St. Louis	16.50	27.90	....	....	....	2.50	2.35*h*	2.35*h*	.42*y*	48.45
San Francisco	16.50	28.15	2.40	....	3.40	2.95	4.00*aa*	....	.49	.....
Seattle	16.50	28.40	3.07*mee*	2.93*mee*	....	3.58*mgee*	3.05*hmee*	....	.59*mee*	52.00*mee*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum, 50 gal. ea. *q* Per 90-lb. roll. *r* F.o.b. factory, Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement; Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt pitch in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *D.* Std Black. *E.* Ready-mixed. *F.* Over 80% ferric oxide. * Aver. wt. approx. 425 to 550 lbs. drum. *q* Freight allowed to destination not exceeding .50 cwt.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.10	$2.50	$2.75	$2.50	$2.90	$2.75	$2.90	$1.28	$1.28
Baltimore	3.20*d*	2.75	3.275*e*	3.10/3.25	3.075*e*	2.975	2.975*e*	1.675*e*	1.675*e*
Birmingham	3.15	2.40	2.825*h*	2.245	2.62	2.875	2.875*h*	1.30	1.40
Boston	3.185*	2.75	3.15*r*	3.20	3.20*t*	3.13*ll*	3.10*t*	2.14*ll*	2.14*ll*
Chicago*	3.40*k*	3.15*r*	3.20*m*	3.00*m*	3.525*r*	3.37*t*	3.24*r*	2.35*h*	2.35*h*
Cincinnati	3.225	2.925	2.99*h*	2.75/3.00	3.10	3.12*N*	3.175*h*	2.02	2.02
Cleveland*	3.25*t*	3.20*t*	3.20*t*	3.20	3.20	3.20	3.20*	2.45	2.45
Dallas	3.50	2.625	2.75**	2.75	3.437	2.90	2.90	1.40	1.40
Denver	3.50	2.775	2.75	2.705	3.30	3.00	3.05	1.80	1.80
Detroit*	3.33*	3.08*	3.23*	3.23*	3.32*t*	3.22*ll*	3.15*h*	2.28*	2.28*
Kansas City	3.625	2.75	2.90	2.725/2.97	3.25	2.987*	3.075*h*	2.03	2.03
Los Angeles	3.285*g*	2.70	2.925*h*	2.57	3.437*N*	3.10	3.225*r*	2.05	2.05
Minneapolis*	3.125	2.70	2.82	2.65	2.90	3.20*n*	2.875	1.95	1.95
New Orleans*	3.05	2.42	2.80**	2.60	2.625	2.925*h*	2.75*	1.375	1.375
New York	3.874*hr*	3.57*hf*	3.975*h*	3.84*f*	4.15*t*	3.63*aaP*	3.815*hf*	2.415*P*	2.415*P*
Philadelphia	3.925	3.20	3.51*M*	2.975/3.72*	3.55**	3.55*	3.515*	1.95	2.25
Pittsburgh	3.475*h*	3.20*h*	3.475*h*	3.325*h*	3.30*h*	3.35	3.00	2.025*h*	2.025*h*
St. Louis	3.625*	3.125*h*	3.025*h*	3.125*h*	3.25*h*	3.28*	3.05*N*	2.175*h*	2.175*h*
San Francisco	3.475*hk*	2.905*hs*	3.075*hs*	2.66**	3.45**	3.225*U*	3.275*R*	2.125*h*	2.125*h*
Seattle	3.40*d*	2.75*t*	2.95*t*	2.78	3.25*t*	2.925	2.95*P*	2.25*	2.35*t*
Montreal*†*	2.00	1.80	1.90	1.70	2.00	1.90	1.90	1.25	1.25

* Cost of living bonus now included in basic wage. † Plus 2% vacation pay.

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. *d* Incl. 10¢ H&WF. *e* Incl. 6¢ H&WF. *f* Incl. 6% WF. *g* Incl. 11½¢ WF. *h* $2.725 homes & housing plus 7½¢ WF. *i* Incl. 17¢ WF. *j* Incl. 10½¢/hr. WF. *k* Incl. 7½¢/hr. WF. *l* Incl. 4% VF. *m* Incl. 5¢ hr WF. *n* Incl. 20¢ H, W, Ins., Vac. & Retirement. *o* Incl. 10¢ PF, 8¢ WF. *p* Incl. 3% WF, 3% PF. *q* Incl. 3½% WF and 20¢ PF. *r* Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. *s* Incl. 7½¢ H&WF. *t* Incl. 11½% WF. *u* Incl. 10¢ WF. *v* Negotiating. *w* Incl. 8¢ WF. *x* Incl. 22½¢ WF. *y* Incl. 7½¢ H, 5¢ H&WF. *z* Incl. 15¢ WF, 15¢ PF & 20¢ B.F. *aa* Incl. 3% WF. *bb* Incl. 2½¢ H&WF. *cc* Plus 5% WF, plus travel pay per day. *dd* Plus $4/per day Annuity contrib. *ee* Incl. 11¢ H & WF. *ff* Incl. 7¢ WF. *gg* Incl. 15¢ H&W. *hh* Incl. 5% WF, 6PH. *ii* Incl. 10¢ H&WF 10¢ VF, 2½% PF. *jj* Incl. 3% WF, 3% PF, 2% VF, 1% EF. *kk* Incl. 7½¢ PF. *ll* Incl 1% WF O Incl 2% WF, 1% PF, P Incl. 5% WF, 6 PH. R Incl. 12¢ Wr. and 1¢ apprentice. S Incl. 12½¢ H and WF. T Incl. 21¢ H, W & VF. U Incl 7½¢ WF, 4% VF, 1% PF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Feb. '54	Mar. '54
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.00	1.00
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.00	1.00
Skilled Labor Wages			
Carpenters (8 hr. day) 1 el.	av. per hr.	2.25	2.25
Bricklayers (8 hr. day) 1 el.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day)	Remachadores. av. per hr.	1.13*	1.13*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1200.53	1200.53
Reinf. Steel, Corr. Rods			
½" x 11 meters	per ton	1223.50	1223.50
⅜" x 11 meters	per ton	1223.50	1223.50
¼" x 11 meters	per ton	1223.50	1223.50
⅝" x 11 meters	per ton	1223.50	1223.50
½" x 11 meters	per ton	1223.50	1223.50
1" x 11 meters	per ton	1223.50	1223.50
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	60.00	60.00
Rose Gravel	per tr. load	55.00	55.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	850.00	850.00
1st Class Pine	per M ft.	1400.00	1400.00
2nd Class Pine	per M ft.	1300.00	1300.00

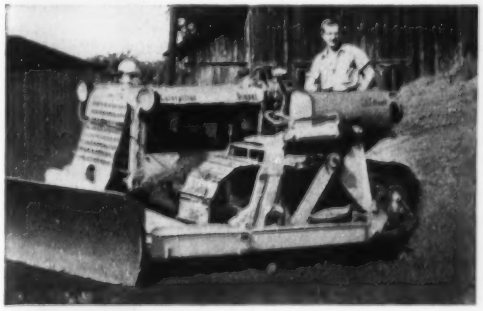
* 1st & 2nd fl. add 40% ea. addn'l floor over preceding one

ENR Skilled Average: (Bricklayers, Carpenters, Iron workers): $3.112 **ENR Common Average:** $1.964.

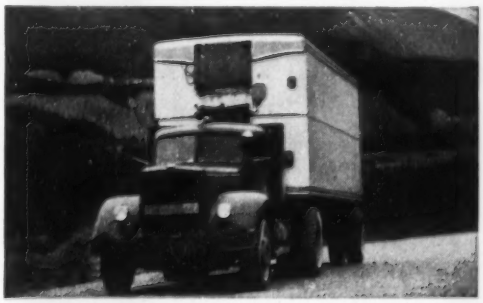
A STORY FOR EVERY MAN WITH ROLLING STOCK

Some of the power equipment of REDICK & SONS, WOOSTER, OHIO.

SIX TROUBLE-FREE YEARS WITH CITIES SERVICE C-300 OIL!



FOR THE MAN WHO GROWS FOOD. For their trucks, cars, tractors and other power equipment, including diesel above, the Redicks use only Cities Service C-300 Motor Oil.



FOR THE MAN WHO TRANSPORTS FOOD. Albert Herda, trucker extraordinary, uses Cities Service C-300 Motor Oil in year 'round operation between Minnesota and Alaska!

You may say, "What's a farm story doing in this magazine?"... and it's a good question Mr. Fleet Owner, or Mr. Contractor . . . a good question until you remember that much of the equipment the Redicks will use to farm 1000 acres is the same kind of equipment you use. Diesels, gasolene engines, separate power units, all with a thousand finely machined, intricate pieces of mechanism that demand the finest lubrication in the world. THAT'S WHAT THE REDICKS GET and that's what you can get in all your equipment with Cities Service Heavy Duty C-300 Motor Oil.

This great Cities Service Motor Oil serves bus fleets, truckers, farmers and construction crews throughout most of the country. Try C-300 in your operation and check mileage, wear and performance. Call the Cities Service Office nearest you or write to Cities Service Oil Company, Sixty Wall Tower, New York 5, New York.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲† **N. H., Portsmouth**—MESS and DORMITORIES—B.A. 5/14—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., airmen's mess and dormitories, Portsmouth Air Force Base, ENG-19-016-54-71. $5,000,000. Plans dsposit $30 refundable. Extended date. New Hampshire Assoc., 192 Elm St., Manchester, archts. CD 3/29.

† **Massachusetts**—AAA FACILITIES—B.A. On Or About 5/18—U. S. Eng., 857 Commonwealth Ave., Boston, constr. special AAA facilities, masonry, concrete block bldgs. for batteries, electrical facilities, sewers, Lincoln, Wayland and Burlington. $500,000-$1,000,000.

BIDS ASKED—BUILDINGS

▲ **Conn., East Windsor**—SCHOOL—B.A. 5/25—Town, Merle H. Woodmansee, supt. Schools, Bd. Educ. Offices, Warehouse Point, high school, Potwin Property, Town St. Route 5, $1,000,000. Plans deposit $50. Paul H. Olson & D. C. Cimino, and Richard F. Miller Assoc., 1052 New Britain Ave., Elmwood, archts. CD 6/18.

SOON LETS CONTRACT—BUILDINGS

Mass., Attleboro—MANUFACTURING—L. G. Balfour Co., 25 County St., Attleboro, soon lets contract 3 story, 60x200 ft. mfg. bldg. $380,000. F. P. Sheldon & Sons, 1009 Hospital Trust Bldg., Providence, R. I., engrs.

▲ **Mass., Beverly**—LIBRARY, etc.—Gordon College of Theology & Missions, 30 Evans Way, Roxbury, soon lets contract library, admin. bldg., 2 dormitories, Prince Estate, Over. $1,000,000, Monahan Meikle & Johnson, 225 Main St., Pawtucket, R. I., archts. CD 4/20.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,
Nello L. Teer, Durham, N. C. LB **$4,769,712,** est. $5,000,000. Contr. 203, Sect. 2 grading, drainage, bridges, Scarboro, Falmouth, South Portland and Portland. Bids Apr. 23. CD 4/12.

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,
The Savin Constr. Corp., 10 Village St., East Hartford, Conn. CA **$1,492,817** est. $1,500,000. Contr. 206 Sect. 2 grading, drainage, New Gloucester and Auburn. Bids Apr. 22. CD 4/12.

▲ **MAINE**—Maine Turnpike Auth., 17 Bishop St., Portland,
A. T. Sargent, Stillwater, Me. CA **$1,185,847,** est. $1,200,000, Contr. 211B, Sect. 2;
Campanella & Cardi Constr. Co., 789 Jefferson Blvd., Warwick, R. I. CA **$786,548,** est. $800,000. Contr. 211 A, Sect. 2 grading, drainage, Augusta Exten., Gardiner, Augusta and Farmingdale. CD 4/21, under LB.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Worcester Sand & Gravel Co., Inc., 214 Holden St., Shrewsbury, Mass. LB **$265,305,** est. approx. $270,000. hy. reconstr. Rte. 31, Charlton. Bids Apr. 20. CD 4/7.

MASSACHUSETTS—Commonwealth of Mass., Metropolitan Dist. Comn., Parks Div., 20 Somerset St., Boston,
Old Colony Constr. Co. of Quincy, Vernon St., Quincy, Mass. CA **$847,311,** est. $700,000. Proj. 841 reconstr. William T. Morrissey Blvd.-Bay Bridge to Columbia Circle, Dorchester. CD 4/20, under LB.

† **D. C. Loveys Co.,** 1430 Massachusetts Ave., Cambridge, Mass. CA **$823,000,** est. $800,000. central heating plant, exten., Naval Air Station, Spec. 31248 (Rev) QUONSET POINT, R. I. First Naval Dist., 495 Summer St., Boston, Mass. CD 2/24, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Construction Units, Inc.,** 199 Washington St., Boston, Mass. LB **$1,780,238.** HIGH SCHOOL;
Theodore Loranger & Sons, 404 Nash Rd., New Bedford, Mass. LB **$454,000,** est. $450,000. ELEMENTARY SCHOOL Cross Rd. (School B); LB **$452,000,** est. $450,000. ELEMENTARY SCHOOL, Jones Park School A, DARTMOUTH, MASS. Town, Dr. E. Deane Freitas, chn. School Bldg. Comn., Dartmouth, Mass. Bids Apr. 16. CD 3/17.

▲ **S. Volpe & Co.,** 185 Devonshire St., Boston, Mass. LB **$1,979,000.** COURT HOUSE addn., alterations, Highland and Harvard Sts., WORCESTER, MASS. Worcester Co., Edward P. Bird, chn., Court House, Worcester, Mass. Bids Apr. 22. CD 4/13.

Frouge Constr. Co., 74 Goodsell St., Bridgeport, Conn., CA. **$892,000,** Westover Elementary SCHOOL, Stillwater Ave., STAMFORD, CONN. City Bd. Educ., Supt. Schools, 151 Broad St., Stamford, Conn. CD 4/6, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **D. C., Wash.**—EXHIBITS—B.A. 5/11—General Services Admin., Public Bldg. Service, Wash., D. C., modernization exhibits, new electrical and ventilating systems at Natural History Bldg., Smithsonian Institution North American Mammals Hall No. 12. CD 10/26/45, under Public Buildings.

† **N. Y., Rome**—ELECTRONICS FACILITIES—B.A. 5/12—U. S. Eng., 80 Lafayette St., New York 13, N. Y. ground electronics facilities and control tower Griffiss Air Force Base. CD 9/15/51.

N. J., Bridgeton—B.A. 5/18—Boro, sewage treatment works alterations. $700,000. Albright & Friel, Inc., 121 S. Broad St., Phila., Pa., engr.

N. Y., Idlewild—FLOODLIGHTING—B.A. 5/25—At office Chief Engineer Port of New York Auth., 111 Eighth Ave., New York, Zone 11, addnl. floodlighting for parking area, New York International Airport, Contr. NYA-140.022. Plans deposit $30. CD 1/18.

† **N. Y., Plattsburgh**—FACILITIES—B.A. 5/27—U. S. Eng., 80 Lafayette St., New York, Zone 13, rehabilitation existing facilities at Plattsburgh Air Force Base, ENG-30-075-54-276. $500,000-$1,000,000. Plans deposit $100. CD 10/15/52.

BIDS ASKED—BUILDINGS

N. Y., New York—HOUSING—B.A. 5/18—New York City Housing Auth., 63 Park Row, Zone 38, foundations and general constr.; heating and ventilating; electrical work; plumbing and for furnishing, installing elevators for General Grant Houses (Proj. No. NY-5-30), Sec. I, incl. Bldgs. Nos. 1 to 5 (inclusive) and garage bldg. in area bounded generally by W. 125 St., Amsterdam Ave., LaSalle St. and Broadway, Manhattan Boro. Plans deposit $75, $25 for elevators. CD 11/15/51.

N. Y., New York—REPAIR SHOP and ENGINEERS OFFICE—B.A. 5/19—Dpt. P. Wks., Municipal Bldg., Zone 7, general constr.; plumbing, heating and ventilating; electrical work for constr. repair shop and engineers office for Dpt. P. Wks., Harlem River from W. 205 St. to W. 206 St., Manhattan Boro. Plans deposit $25. CD 8/22/45.

Pa., Phila.—SCHOOL—B.A. After 6/1—Bd. Educ., 21 and Winter Sts., Comly Elementary School addns. $415,000. Livingston Smith, 160 Chestnut St., archt. CD 11/28/52.

SOON LETS CONTRACT—BUILDINGS

Pa., Norristown—AUTO SALES and SERVICE ROOM, etc.—Marchese Bros., Main and Markley Sts., soon lets contract auto sales and service room, gasoline service station. $500,000. Francis Jobson, Valley Forge, archt. CD 2/4.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	**Latin America**
Sewers, Waste Disposal	**Public Buildings**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
B.A.	**Bids Asked**
ENR	**Engineering News-Record**
CD	**Engineering News-Record Construction Daily**

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Triborough Bridge & Tunnel Auth., Admin. Bldg., Randall's Island, New York, Zone 35,
Horn Constr. Co., Inc., 2174 Hewlett Ave., Merrick, N. Y. LB, **$1,172,320.** grade separation structure Long Island R.R., Main Line, Constr. No. QME-3, Queens Co. Bids Apr. 21. CD 4/15.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Corbetta Constr. Co., Inc., 220 E. 42 St., New York, 17, N. Y., LB, **$4,266,435,** est. $4,527,000. 1.21 mi. Major Deegan Expressway Contract No. 2, FA MDE. 54-1 Bronx Co.;
The Lane Constr. Corp., 37 Colony St., Meriden, Conn., LB, **$2,938,988,** est $3,604,000, 1.53 acc., 7.19 hy. mi. Springfield-East Springfield SH 8047, East Springfield-Cherry Valley, SH 934, Cherry Valley-Sharon Springs, Sharon Springs, Canojoharie Pt. 1, SH 8064, FARC 54-59, Otsego Co.;
Peckham Road Corp., 50 Haarlem Ave., White Plains, N. Y., LB, **$170,988,** est. $187,000, 2.59 mi. Nevis-Blue Store, SH. 589, FARC-54-54, Columbia Co.; LB, **$269,419,** est. $344,000, 4.28 mi. Fishkill-Peekskill, Pt. 2, SH. 5387, Peekskill-Fishkill, Pt. 3, SH 5156 FARC-54-58, Putnam Co.;
Madison Co. Constr. Co., Inc., Madison, N. Y., LB, **$868,660,** est. $967,000, 8.04 mi. Roseboom-Janesville, Pt. 1, FASSH-54-4, Otsego Co.;
James Beradi, Kingston, N. Y., LB, **$317,812,** est $386,000, 5.72 mi. Pine Bush-Ellenville Pt. 3, SH 8441 FARC. 54-57, Ulster Co.;
Hudson River Constr. Co., Inc., 75 State St., Albany, N. Y., LB, **$145,693,** 3.39 mi. North Hillsdale-Austerlitz, SH. 8234, Spencertown-Austerlitz, SH. 5629 FARC. 54-55, Columbia Co.;
Empire Contracting Corp., Suffern, N. Y., LB, **$284,606** est. $301,000, 1.54 mi. access road, Pearl River-Palisades Interstate Parkway, Convent Road, Pearl River FASS. 54-7, Rockland Co.;
Kendall Roadways, Inc., 1373 William St., Buffalo, N. Y., LB, **$255,967,** est. $284,000, 3.73 mi. Holland-Yorkshire Pt. 2, SH 8086, FARC 54-56, Erie Co.;
City Constr. Co., 640 Jay St., Utica, N. Y., LB, **$379,993** est. $465,000 6.61 mi. New Berlin-Leonardsville, Pt. 1 SH 1731, New Berlin-Leonardsville, Pt. 2, Leonardsville-Bridgewater Pt. 2, SH 1824, FARC 54-17, Madison and Chenango Counties;
Serafini Constr. Co., Inc., & Binghamton Constr. Co. Inc., Conklin Rd., Binghamton, N. Y., LB, **$675,535,** est. $692,000 0.67 ACC., 1.14 hy. miles Johnson City; Floral Ave., Johnson City, Route 17, Conn., FASH 52-2; Riverside Drive, SH. 444, Riverside Dr.-Binghamton, SH 5377, FASH 57-7, FASH 54-8P, FARC 54-52, Broome Co.;
Tully & DiNapoli, Inc., 12750 Northern Blvd., Corona, N. Y., LB, **$1,131,578,** est. $1,223,000, 1.51 mi. Peninsula Boulevard, Contr. 5, (South St. Parkway Interchange) Southern State Parkway FASS-54-6, SSP-54-1 Nassau Co.;
Brunner Asphalt & Constr. Inc., 237 Kingston Ave., Buffalo, N. Y., LB, **$682,524,** est. $830,000, 6.3 mi. Southwestern Boulevard, SH. 9269, FARC 54050, Erie Co.;
Lizza Asphalt Constr. Co., Inc., 21 Orchard St., Oyster Bay, N. Y., LB, **$283,693,** est. $336,000, 3.48 mi. Jersusalem-Front St. Road SH. 437, FARC 54-53, Nassau Co.;
Berfanti Constr. Co., Inc., 15 Oakland Ave., Harrison, N. Y., LB, **$2,988,871,** est. $3,759,000 2.7 mi. Palisades Interstate Parkway (Sec. 2) State Line-Orangeburg, SH. 728, PIP. 54-1, RC54-51, Rockland Co.;
Louis Mayerschn, 36 State St., Albany, N. Y., LB, **$987,096,** est. $1,235,000 6.64 mi. Kelsey Corners-Oakville FASSH. 54-6, Otsego Co. Bids Apr. 22. CD 3/30.

† **Arthur Venneri Co.,** 300 North Ave. East, Westfield, N. J., LB, **$349,113,** Atlantic Division HEADQUARTERS BLDG. and related site improvs., McGuire Air Force Base, ENG-36-109-54-177, WRIGHTSTOWN, N. J. U. S. Eng., 121 N. Broad St., Phila., Pa. Bids Apr. 15. CD 4/1.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
Joseph Ciccone, Ivyland Rd., Ivyland, Pa., LB, **$94,235,** wid'ning 26,488 ft. left and right of existing road with crushed aggregate base and bit. surf. 2 ft. 8 in. wide, L. R. 06134 (3), Maxatawny and Greenwich Twps., Berks Co.;
C. J. Langenfelder & Son, Inc., 8427 Pulaske Hy., Baltimore 24, Md., LB, **$1,821,933,** const. 18,423 ft. divided hy. of rein.-con. pavement variable in width on each side of concrete divisor, two I-beam bridges, T. R. 13, Tullytown Boro, Falls Twp., Bucks Co.;
Putman & Greene, Inc., P.O. Box 2012, Fort Wayne 3, Ind. LB, **$165,652,** wid'n 23,962 ft. existing road with crushed aggregate base and bit. surf. variable in width, T. R. 36, Chest Springs Boro, Clearfield Twp., Cambria Co.;

(Continued on page 82)

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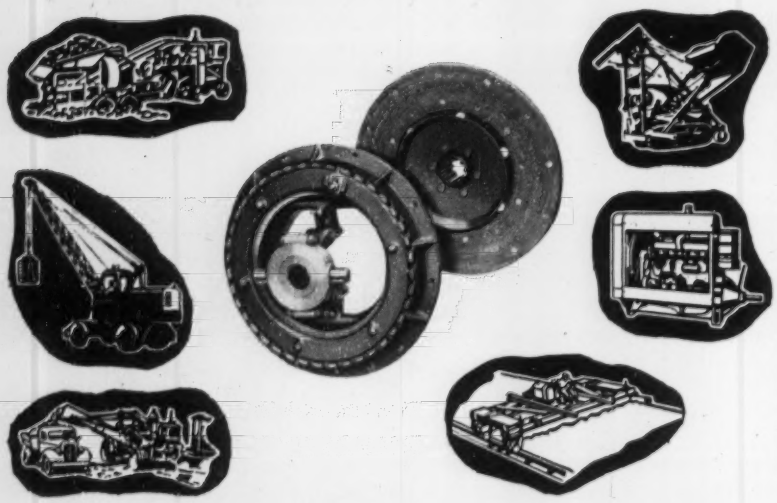

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MANUFACTURERS OF THE "CEMENT GUN"

(Continued from page 80)

Middlecreek Constr. Co., Middleburg, Pa., LB, $169,764. const 11,900 ft. crushed aggregate base with bit. surf. 22 ft. wide, T. R. 220, Muncy Twp., Lycoming Co.;

New Enterprise Stone & Lime Co., Inc., New Enterprise, Pa., LB, $272,507, surf. 37.273 ft. existing road with bit. surf. 22 ft. wide, T. R. 219, Berlin Boro, Summit and Brothers Valley Twps., Somerset Co.;

Rake & Litts, R. D. 2, East Stroudsburg, Pa., LB, $490,162. wid'n 29,200 ft. existing road with crushed aggregate base and bit. surf. variable in width, T. R. 15, Liberty and Bloss Twps., Tioga Co.;

H. J. Williams Co., Inc., 150 S. Summer St., York, Pa., LB, $185,684, wid'n 36,823 ft. left and right of existing road with crushed stone base and bit. surf. 3.71 ft. wide, T. R. 24, N. Hopewell, Windsor and York Twps., Winterstown Boro, York Co. Bids Apr. 23. CD 4/5.

Ernest Ventresca & Son, 5600 Bingham St., Phila., Pa. LB, $271,985. sewers, grading Lorraine Gardens. 35th Ward, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Apr. 12. CD 4/2.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore,

J. O. & C. M. Stuart, Inc., 3121 South St. N. W., Wash., D. C. LB, $914,387. grading, drainage, surf. 2.41 mi. relocation U. S. Rte. 240. near Gaithersburg, Contr. M-485-5-320, Montgomery Co. Bids Apr. 20. CD 4/6.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Turner Constr. Co.,** 420 Lexington Ave., New York 17, N. Y., CA Approx. $2,500,000. 2 story WAREHOUSE, south side 132 St. and N. Y., N. H. & H. R. R. right of way, NEW YORK, N. Y. F. W. Woolworth Co., 223 Broadway, New York 7, N. Y. CD 2/24.

Emmons Elzey & Son, 111 N. 4 St., Camden, N. J. Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT, Cedar St., etc., DELANCO, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Lovuolo & Schafer, 633 Avondale Ave., Haddonfield, N. J., Separate Contracts $450,000, RESIDENTIAL DEVELOPMENT, GREENLOCH and CLEMONTON, N. J.

Seashore Homes, Inc., 109 N. Clarendon Ave., Margate, N. J., Separate Contracts, $360,000 RESIDENTIAL DEVELOPMENT, MARGATE and LYNWOOD, N. J.

Lewis C. Bowers, 341 Nassau St., Princeton, N. J. CA, $250,000, 1 story, masonry, steel, 32,000 sq. ft. MANUFACTURING PLANT and WAREHOUSE, MILLVILLE, N. J. Andrew Y. Michie & Sons Co., Howard and Berks St., Phila., Pa. Fulmer & Bowers, 341 Nassau St., Princeton, archts.

Nuzzi Constr. Co., Mount Ephraim, N. J., Separate Contracts, $300,000, RESIDENTIAL DEVELOPMENT, Bell Rd., etc., MOUNT EPHRAIM, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

Federici Brothers, Inc., 666 Marlton Ave., Camden, N. J., Separate Contracts, $992,000, RESIDENTIAL DEVELOPMENT, PENNSAUKEN, N. J.

▲ **Collingswood Constr. Co.,** 1080 Maple Ave., Merchantville, N. J., Separate Contracts, $2,000,000. RESIDENTIAL DEVELOPMENT, Shore Rd., SOMERS POINT, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

▲ **Wm. J. Lyons Co., Inc.,** 99 Westport Ave., Norwalk, Conn., LB $1,575,000 general contract HIGH SCHOOL, St. George Ave., WOODBRIDGE, N. J. Bd. Educ., Woodbrige, N. J. Bids Mar. 23. CD 2/4.

▲ **Facciolo & Barrett,** Lansdowne, Pa. Separate Contracts. $4,000,000. RESIDENTIAL DEVELOPMENT, Sprout Rd., BROOMALL, PA.

Lanmore, Inc., 103 W. Lancaster Ave., Wayne, Pa. Separate Contracts. $700,000. RESIDENTIAL DEVELOPMENT, Malin Rd., BROOMALL, PA. John B. Thomson, 125 Coulter Ave., Ardmore, Pa., archt.

Paul A. Keiser, Maple Gardens, Pottstown, Pa. Separate Contracts. $650,000. RESIDENTIAL DEVELOPMENT, Elmwood Gardens, COATESVILLE, PA. S. Kendrick Lichty, 830 Lancaster Ave., Bryn Mawr, Pa., archt.

Key Constr. Co., 335 W. State Media, Pa. Separate Contracts. $600,000. RESIDENTIAL DEVELOPMENT, Nether Providence Twp., GARDEN CITY, PA. Jack Swerman, 405 Market St., Chester, Pa., archt.

Jeffery Enterprises, Att. George W. Jeffery and Ralph Robinson, 2201 Parkway St., Phila., Pa. Separate Contracts. $300,000. RESIDENTIAL DEVELOPMENT, Rte. 32, MORRISVILLE, PA.

Reynolds Estate, Inc., 954 S. High St., West Chester, Pa. Separate Contracts. $300,000. RESIDENTIAL DEVELOPMENT, Penna Ave., PAOLI, PA.

▲ **Orleans Constr. Co.,** 100 W. Rockland St., Phila., Pa. Separate Contracts. $2,000,000. RESIDENTIAL DEVELOPMENT, Cheltanham Ave. east of Pine Ridge Rd., PHILA., PA.

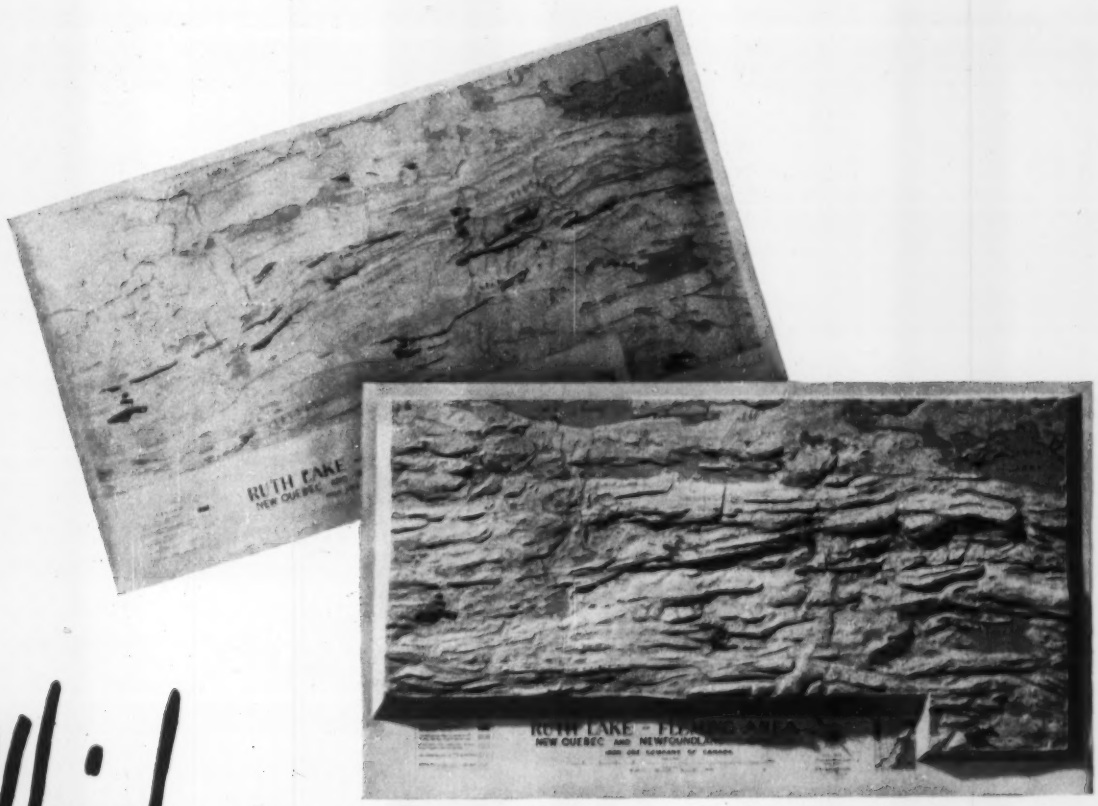
Bender Homes, Inc., 1817 S. Fourth St., Phila., Pa. Separate Contracts. $740,000. RESIDENTIAL DEVELOPMENT, various locations, PHILA., PA.

▲† **Malan Constr. Corp.,** 25-09 42 Rd., Long Island City 1, N. Y. CA $3,480,000. exten. of Bldg. 633 incl. mechanical services Naval Boiler & Turbine LABORATORY, NOY 74747, Spec. 35564, U. S. Naval Base, PHILA., PA. Dpt. Navy, Phila. Naval Base, Phila., Pa. CD 4/16, under LB.

Joseph R. Farrell, Inc., 4424 Market St., Phila., Pa. LB $350,000. 1 story, bsmnt., 200x205 ft. WAREHOUSE and OFFICE, PHILA., PA. Central News Co., 614 Locust St., Phila., Pa. Bids Dec. 2. CD 12/2.

▲ **Joseph R. Farrell, Inc.,** 4424 Market St., Phila., Pa. CA $1,500,000. STUDENT UNION, VILLANOVA, PA.

(Continued on page 85)



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Basic topographic information for the model was taken from aerial topographic maps made earlier by Canadian Aero Service, our affiliate, from photographs available for the area. Geologic data was provided by the Iron Ore Company of Canada.

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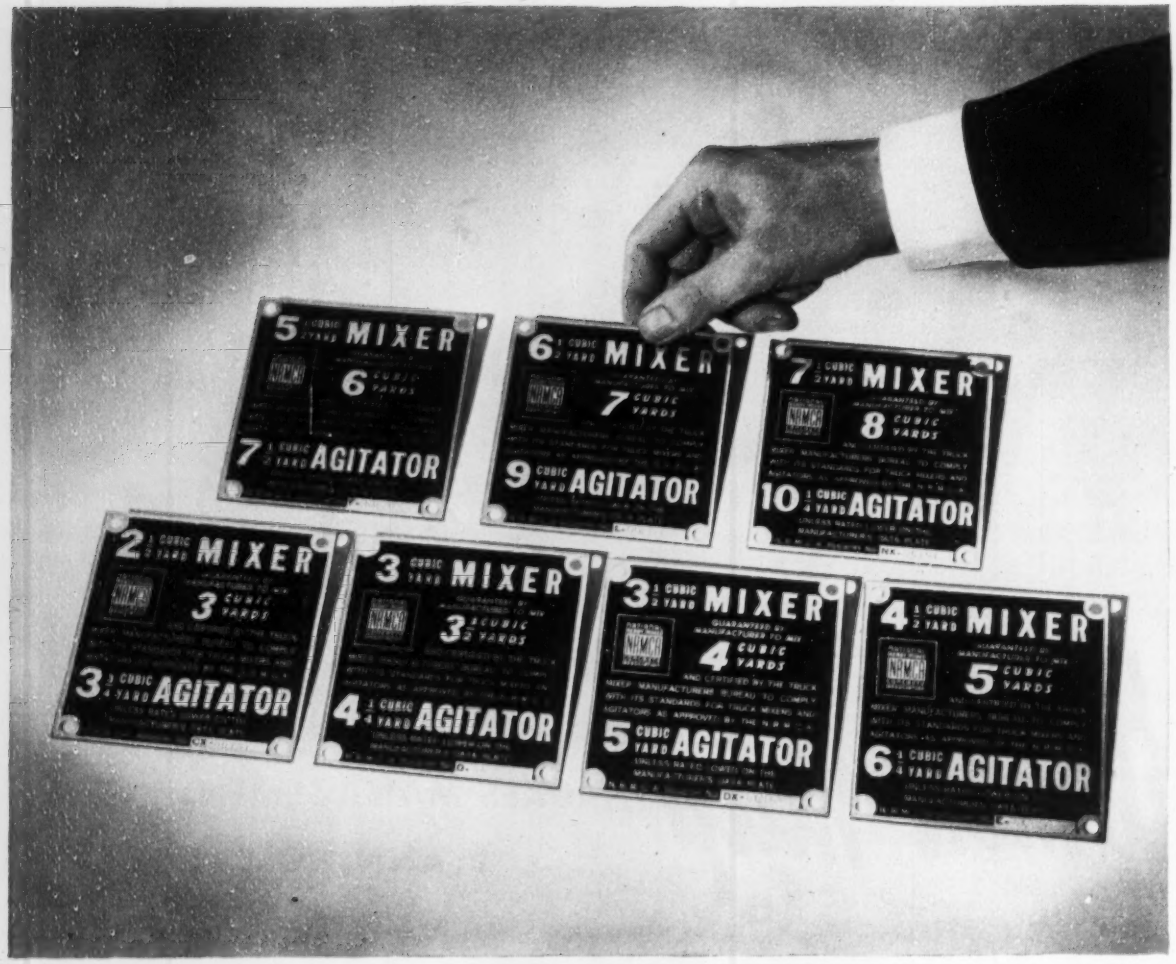
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THE JAEGER MACHINE COMPANY
Columbus, Ohio
THE T. L. SMITH COMPANY
Milwaukee, Wis.
WORTHINGTON CORPORATION
Plainfield, N. J.

(Continued from page 82)

Villanova University, Villanova, Pa. Bids Apr. 13. CD 4/2.

Charles Held, 508 Furlong Ave., Upper Darby, Pa. Separate Contracts. $305,000. RESIDENTIAL DEVELOPMENT, W. Wayne Ave., WAYNE, PA.

▲ **Bechtel Corp.**, 161 E. 42 St., New York, N. Y. CA, 10,000 bbl. a day fluid coking unit special equip., steel framing, concrete piping, etc.;

Whiting, Turner Contg. Co., National Marine Bank Bldg., Baltimore 2, Md. CA consolidated mechanical shops, structural steel, concrete, masonry block, all trades, BALTIMORE, MD. Total est. $15,000,000. Esso Standard Oil Co., Baltimore Refinery, Boston and Dean Sts., Baltimore 2, Md. CD 4/13, under CA.

Leon Forman, Woodward Bldg., Wash., D. C. Owner Builds. $300,000. 16 brick HOMES Northmount, SILVER SPRING, MD. J. d'Epagnier, 1004 Ripley St., Silver Spring, Md., archt.

Iddings Properties Inc., 4429 Aspen Hill Rd., Silver Spring, Md. Owner Builds. $790,000. 79 brick HOMES, WHEATON CITY, MD. J. d'Epagnier, 1004 Ripley St., Silver Spring, Md., archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **W. Va., Leestown**—ROADWAY—B.A. 5/12—Fish & Wildlife Service, Dpt. Interior, 59 Temple Place, Boston 11, Mass. bit. surf. tr. approx. 2,937 lin. ft. roadway at U. S. Fish Cultural Station, Inv. No. FW 5-1958.

† **S. C., Charleston**—PILING—B.A. 5/13—U. S. Eng., Custom House, repairing piling at dock at Charleston Transportation Depot, No. 38-081-54-24.

▲† **La., Shreveport**—PAVING—B.A. 5/19—U. S. Eng., Gay Bldg., Little Rock, Ark., paving, incl. laying concrete apron, asph. concrete ramp, aircraft fueling sys., 2 light systems, Barksdale Air Force Base, $3,000,000. CD 4/26.

BUILDINGS

LOW BIDS AND CONTRACTS

Thomas J. Broyhill Co., Inc., 2049 N. 15 St., Arlington Va., rejected bids Sept. 17 HOTEL General Pershing, ARLINGTON, VA. LB $862,825. Will readvertise. CD 9/25/53, under LB.

▲† **Thompson & Street Constr. Co.**, 72 N. 11 St, N.E., Atlanta, Ga., LB, $2,072,000. two WAREHOUSES, Marine Corps Supply Depot, NOY 81254 ALBANY, GA. Dpt. Navy P. Wks. Office, Naval Base, S. C. Bids Apr. 20. CD 3/24.

Edw. J. Beiting, Sr., 811 Patterson St., Newport, Ky. CA Est. $500,000. 3 story, 42x211 ft., 1 story, 34x75 ft. rein.-con., steel, brick BUILDINGS addns. to Carmel Manor, FORT THOMAS, KY. Carmelite Nuns, Carmel Manor, Fort Thomas, Ky. Edw. J. Beiting Jr., 1002 Monmout St., Newport, Ky., archt. I. C. Disher, 528 Walnut St., Cincinnati, O., engr. Awarded Apr. 17.

Ale Bornstein, 1219 Logan St., Louisville, Ky. CA $683,740. general contract COMMUNITY CENTER and new BLDG., Dutchman's Lane and Cannons Lane, LOUISVILLE, KY. Young Men's Hebrew Assn., 792 S. Second St., Louisville, Ky. Bids Apr. 13, awarded Apr 20. CD 4/22, under LB.

▲ **Erhart Knopf Constr. Co.**, E. Broadway, Louisville, Ky. CA approx. $1,189,000. farmers' MARKET, Benchel, LOUISVILLE, KY. Louisville Produce Assn., Fifth and Jefferson Sts., Louisville, Ky. Bids Apr. 14, awarded Apr. 23. CD 4/2.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Mich., Detroit—B.A. 6/1—At office G. R. Thompson, city engr., Dpt. P. Wks., Guardian Bldg., Zone 26, Contr. PW-256, Southfield Outlet Sewer in Ford Rd. near Southfield Rd. in city of Dearborn. Plans deposit $20. CD 9/6/51.

BIDS ASKED—BUILDINGS

▲ **Ill., Bensonville**—SCHOOL—B.A. 5/12—School District No. 10, York Rd., 1 story high school. $1,000,000. Schmidt, Garden & Erikson, 104 S. Michigan St., Chicago, Zone 3, archts. CD 3/17/50 .

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., S. O. Linzell, dir., Columbus,
A. J. Baltes, Inc., 11 Olive St., Norwalk, O. CA $572,263, est. $555,500. Type T-35 on B-119 and structures 2.447 mi. SR 73-10-16, S 492 (3), Scioto Co.;
Allegheny Asphalt & Paving Co., Inc., 801 Bingham St., Pittsburgh, Pa. CA $779,557, est. $793,300, Type T-35 and structures 1.834 mi., SR 18-(9.41-10.82) Mahoning Co.;
Harper Supply, Inc., 118 W. Front St., Napoleon, O. CA $602,650. Alt. B, est. $651,000. Type T-35 and structure 6.855 mi. city of Celina USR 127-(14.24-20.99) Parts Nos. 1 and 2, Mercer Co.;
Smith Constr. Co. of Ohio, P.O. Box 515, Vienna, O. CA $898,042, est. $966,900. Type T-35 and structures 4.192 mi. city of Youngstown, SR18-(11.24-14.29), Mahoning Co.;
George H. Cheek Constr. Co., 300 McClure Bldg., Frankfort, Ky. CA $1,065,992. Type-T-71 5.226 mi., USR 21-(2.19-6.60), Noble Co. Grand total $3,918,504 CD 4/21, under LB.

▲ **OHIO**—State Hy. Dpt., S. O. Linzell, dir., Columbus, rejected bids Apr. 13. Type T-35 2.096 mi. CR 52, S 453 (2), Wayne Co. LB $67,817; Type T-35 15.44 mi. Mercer Co., LB $98,688; Type T-71 and structures

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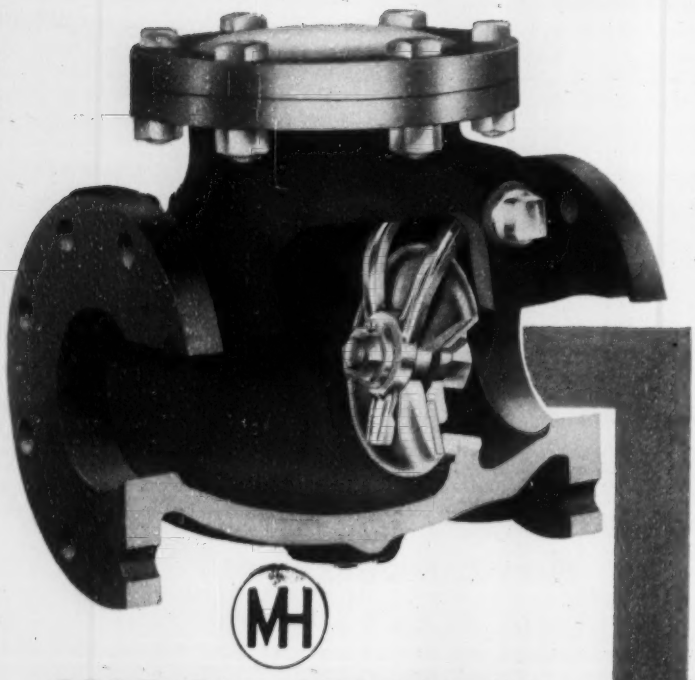

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0.776 mi. city of Toledo, SR 246-15.55, U-UG-848, (2), Lucas Co., LB **$1,025,000**; Type T-35 8.987 mi. SR 77-0.00 (4.46-8.16), Parts Nos. 1 and 2, Muskingum Co., LB **$162,369**. CD 4/21, under LB.

Thorpe Constr. Co., 109 N. Union St., Akron, O. CA **$142,798**, est. $155,144. wid'n. Portage Trail, pave part of 14 St. and improve standpipe property, CUYAHOGA FALLS, O. City, Cuyahoga Falls, O. Bids Apr. 12, awarded Apr. 15. CD 4/14.

Encrete, Inc., W. Dorothy Lane, Dayton, O. LB **$249,898**, est. $313,667. wid'n. Riverside Dr. to 4 lanes from Helena St. to 400 ft. north of Ridge Ave., DAYTON, O. City, Municipal Bldg., Dayton, O. Bids Apr. 15. CD 4/7.

▲ **WISCONSIN**—State Hy. Comn., State Office Bldg., Madison,

Zachek Constr. Co., Denmark, Wis., LB, **$74,830** Contract No. 1, 0.871 mi. Proj. T 02-4 (9), Brown Co.;

Lee H. Parker, Appleton, Wis., LB, **$130,955** Contract No. 1, 0.706 mi. Proj. U 5601 (4) Winnebago Co.;

Mathy Constr. Co., 508 Hoeschler Bldg., La Crosse, Wis., LB, **$191,144**, Contract 1, 17.123 mi. Proj. T 098 (2) and T 028-1 (12), Buffalo and Pepin Counties;

Trierweiler Constr. Supply Co., Marshfield, Wis., LB, **$185,819**, Contract 1, 1.107 mi. Proj. U 5103 (3) La Crosse Co.;

Rock Road Constr. Co., 5711 Winnequah Rd., Madison, Wis., LB, **$236,008**, Contract 1, 8.628 mi. Proj. T 04-1 (13), T 04-1 (16) and T 04-1 (15) Walworth Co.;

Payne & Dolan of Wisconsin, Inc., 735 N. Water St., Milwaukee, Wis., LB, **$194,651** Contract 1, 8.28 mi. Proj. T 014-3 (17), Racine Co.;

Jay W. Craig Co., 1814 N.E. California St., Minneapolis, Minn., LB, **$251,201**, Contract 1, 13.287 mi. Proj. T 022-1 (7), Iron Co. Bids Apr. 20. CD 4/1.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bleznak Bros.**, 814 N. Broad St., Woodbury, N. J., LB **$4,889,000**, construct, manage, finance, 99 two story brick and stucco apartments, four 4-bedroom ranch style houses, incl. 24 garage compounds and 21 fenced-in play areas, as Air Base Rental Housing, COLUMBUS, O. U.S. Eng., 237 Fourth Ave., Huntington 18, W. Va. Bids Apr. 22. CD 3/12.

▲ **Henry Shanedling & Sons**, 1201 Turners Cross Rd. South, Minneapolis, Minn., CA, **$3,000,000**, 37 store, steel, brick, stone SHOPPING CENTER and 3,200 auto parking area, FORT WAYNE, IND. Southgate Plaza, Inc., c/o Norbert B. Knapke, 2109 Pemberton St., Fort Wayne, Ind. Harry J. Humbrecht & Assocs., 116 W. Rudisill St., Fort Wayne, Ind., archts. and engrs.

▲ **Carl M Geupel Constr. Co.**, 1019 N. Meridian St., Indianapolis, Ind., CA, **$2,360,000**. RESIDENCE HALLS for Women, MUNCIE, IND. Ball State Teachers' College, Muncie, Ind. CD 7/7.

J. R. Willens, 7648 North Ave., Elmwood Park, Ill., Own Forces, **$900,000**, 70 HOMES in Leyden Twp., CHICAGO, ILL. A. M. RaJani, 6310 W. Fletcher St., Chicago, Ill., archt.

▲ **Co-operative Home Builders, Inc.**, 228 N. La Salle St., Chicago 1, Ill., Own Forces, **$10,000,000**. 450 HOMES, ELMHURST, ILL. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, Ill., archt.

▲ **Gebhard-Berghammer, Inc.**, 5345 North Hopkins St., Milwaukee, Wis., CA, **$1,104,000**, general contract 4 story, bsmnt., T-shaped, 215-bed hospital addn., MILWAUKEE, WIS. Evangelical Deaconess Hospital Assn., 1821 W. Wisconsin Ave., Milwaukee, Wis. Bids Mar. 9. CD 2/8.

Phelps-Wagner Builders, Battle Creek, Mich. CA Est. **$350,000**. Hubbard Street Elementary SCHOOL, BATTLE CREEK, MICH. City, Bd. Educ., Battle Creek, Mich. Bids Apr. 8. CD 3/18.

Fullerton Constr. Co., 19156 Filer St., Detroit, Mich. CA **$393,427**. brick elementary SCHOOL for Dist. No. 2, DEARBORN, MICH. Dearborn Twp., 26807 Michigan Ave., Inkster, Mich. CD 2/24.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Texas**—B.A. 5/17—Soil Conservation Service, First National Bank, Temple, floodwater retard. structures with earthfill embankments, etc. on Green Creek watershed approx. 5 mi. north of Dublin, Erath Co., No. 152-54. Harold R. Baker, Box 415, Temple, State Adn. Asst.

▲† **Ark., Jacksonville**—DORMITORIES—B.A. 5/26—U. S. Eng., 300 Broadway, Little Rock, 8 dormitories, and 2 mess halls at Little Rock Air Force Base. $1,000,000-$3,000,000. Extended date. CD 3/20.

BID ASKED—BUILDINGS

Mo., Kirksville—LABORATORY—B.A. 5/12—Northeast Missouri State Teachers College, Bd. Regents, Kirksville, science laboratory hall on campus. Plans deposit $25, Bonsack & Pearce, Inc., 308 N. 6 St., St. Louis, Zone 1, archt.

▲ **Neb., Lincoln**—HIGH SCHOOL—B.A. 5/13—University of Nebraska, 12 and R Sts., Teacher College High School. $1,000,000. Extended date. L. A. Daly Co., Insurance Bldg., Omaha, archt. CD 4/6.

† **N. M., Albuquerque**—SHOP and WAREHOUSE—B.A. 5/18—U. S. Eng., Box 1538, Albuquerque, SSWD shop and SSWD warehouse, Sandia Base, ENG-29-005-54-73. $250,000-$1,000,000. CD 4/14.

▲ **Tex., Amarillo** — OFFICE — B.A. 5/18 — Petroleum Building, Inc., 310 W. 6 St., 6 story bsmnt., 120x400 ft. terra cotta office, rein.-con. fdn., escalators, etc. $1,800,000. Ramco Co., Inc., 3908 Lemmon St., Dallas, engr.-archt. CD 3/12.

(Continued on page 88)

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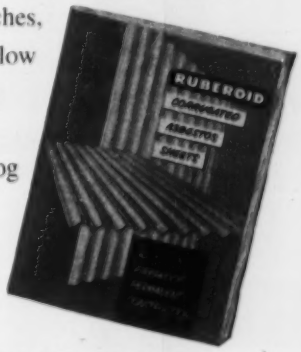

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(Continued from page 86)

† **Tex., Marshall**—BUILDINGS—B.A. 5/20—U. S. Eng., Box 61, Tulsa 2, Okla., constr. Group 2 Bldgs., 41 masonry type buildings, appurtenances, utilities, etc. Longhorn Ordnance Works, Plant 3, Inv. No. ENG-34-066-54-71. $500,000-$1,250,000. Extended date. CD 4/14.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Booth & Olson Constr. Co., 529 Insurance Exchange Bldg., Sioux City, Ia., CA, **$432,463**, street imprvs. COUNCIL BLUFFS, IA. City, City Hall, Council Bluffs, Ia. Bids Apr. 19. CD 4/5.

MISSOURI—State Hy. Comn., Jefferson City,
Peter Kiewit Sons Co., Southeast Station, Wichita, Kan. CA **$112,991**, two 41 ft., two 65 ft., one 80 ft. continuous I-beam spans, Sta. 365 plus 37, Butler Co.; CA **$73,882**. two 50 ft., two 60 ft. continuous I-beam spans Sta. 401 plus 10, Greene Co. Bids Mar. 24, awarded Apr. 20. CD 4/2, under LB.

MISSOURI—State Hy. Comn., Jefferson City,
Arthur Eng. Co., 210 N. Holden St., Warrensburg, Mo. CA **$118,322**. c. conc. 0.847 mi., Calloway Co.;
Land Constr. Co., 502 Seneca St., St. Joseph, Mo. CA **$103,325**. wid'n., b. conc. 3.276 mi. Buchanan Co. Bids Mar. 24, awarded Apr. 20. CD 4/2. under LB.

▲† **Peter Kiewit Sons' Co.**, Southeast Station, Wichita, Kan. LB **$2,101,938**. est. $2,222,117. 12 in. concrete overlay on 10,000 ft. N-S runway parking apron, Smoky Hill Air Force Base, near SALINA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Apr. 21. CD 4/14.

† **TEXAS**—State Hy. Comn., Austin,
Elmer C. Gardner, Inc., P. O. Box 5005, Houston 15, Tex.; CA, **$1,677,900**. Trinity River Bridge and grading 0.925 mi. Hy. S.H. 73, Proj. FI-1052 (16), Chambers Co. Bids Apr. 14, awarded Apr. 19. CD 4/19, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Austin-Worth Constr. Co., P. O. Box 531, Fort Worth, Tex., CA, **$513,248** 13.454 mi. Hys. US 59, Proj. F 458 (3) Panola Co.;
Killian-House Co., 4600 Broadway, San Antonio, Tex., CA, **$508,179**, 10.356 mi. Hy. S.H. 346 Proj. S 58 (4), Bexar Co.;
Hugh McMillan, P.O. Box 1227, El Paso, Tex., CA, **$508,790**, 19.367 mi. Hys. U. S. 62 and 180, Proj. F 147 (7), El Paso Co.;
W. O. Pilphrey, 1412 Electric Bldg., Fort Worth, Tex., CA, **$614,533**, 11.184 mi. Hy. U. S. 80, Proj. FI-235 (14), etc. Midland Co. Grand total $2,144,750. Bids Apr. 13, awarded Apr. 19. CD 4/19, under LB.

▲ **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex. and **Coastal Bend Constr. Co.**, 1220 S. Staples St., Corpus Christi, Tex., LB **$3,408,000**, est. $4,000,000. water filtration plant, O. N. Stevens, Calallen, near CORPUS CHRISTI, TEX. City, City Hall Corpus Christi, Tex. Whitney & Tomlinson, 410-C Buccaneer Dr., Corpus Christi., Tex., archts. Reagan & McCaughan, Wilson Bldg., and Thomas A. Duce Assocs., Murray Bldg., Corpus Christi, Tex., engrs. Bids Apr. 21. CD 3/31.

COLORADO—State Hy. Dpt., State Office Bldg., Denver,
C. L. Hubner Co., 4200 E. Jewell Ave., Denver, Colo., CA, **$219,356**, est. $238,447, 19.844 mi. State Hy. No. 51, Proj. S 0001 (18) & C 19-0051-07, Yuma Co. Bids Apr. 13, awarded Apr. 14. CD 4/6.

Gardner Constr. Co., Glenwood Springs, Colo., CA, **$925,313**, large fish HATCHERY, utility bldg., vehicle storage and workshop, combination fish food storage, nurse ponds, concrete raceways, 3 dwellings area roads and concrete diversion dam with pipe lines, RIFLE, COLO. Colorado Game & Fish Dpt., 1530 Sherman St., Denver, Colo. Bids Apr. 5, awarded Apr. 19. CD 4/14, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Kraus-Anderson, Inc.**, 501 S. Eight St., Minneapolis, Minn. LB **$1,248,767**. general contract State SCHOOL and HOSPITAL addns., CAMBRIDGE, MINN. State, Dept. Admin., 19 State Capitol, St. Paul, Minn. Bids Apr. 15. CD 3/24.

† **Gunnar I. Johnson & Son Co.**, 4817 Vandervork St., Minneapolis, Minn. LB **$498,804**. alterations, addns. to KITCHEN and DINING HALL BLDG. No. 4, Veterans Admin. Hospital, ST. CLOUD, MINN. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Apr. 20.

▲ **H. H. Fox Constr. Co.**, 540 Railway Exchange Bldg., Kansas City, Mo. CA Est. **$1,125,000**. 4 story, 92x230 ft. LIBRARY addn., KANSAS CITY, MO. Linda Hall Library, c/o F. A. Bartlett, chn. Bd., 5109 Cherry St., Kansas City, Mo. Bids Apr. 13. CD 3/30.

▲ **Chas. F. Curry Co.**, 921 Baltimore St., Kansas City, Mo. Owner Builds. **$5,000,000**. SHOPPING CENTER, incl. 11 store bldgs., Antioch and Vivion Rds., KANSAS CITY, MO.

Mission Homes, Inc., 6737 Woodson St., Overland Park, Kan. Owner Builds. **$300,000**. HOUSING, OVERLAND PARK, KAN.

▲ **M. K. Eby Constr. Co.**, 610 N. Main St., Wichita, Kan. CA **$1,069,700**. site preparation, foundations for MATERIALS BLDG., WICHITA, KAN. Boeing Airplane Co., Plant No. II, Personnel Bldg., Wichita, Kan. CD 4/23, under LB.

▲ **Perrin Housing, Inc.**, c/o Decker-Frank-Hexter, 911 St. Josephs St., Dallas, Tex., LB **$2,503,000**, construct, manage, finance HOUSING UNITS, Perrin Air Force Base, SHERMAN, TEX. U. S. Govt., Contg. Purch. Office, Perrin Air Force Base, Sherman, Tex. Bids Apr. 20. CD 4/20.

▲ **Victoria Development Corp.**, Victoria, Tex., cancelled bids SHOPPING CENTER, VICTORIA, TEX. **$1,000,000**. Will re-advertise. CD 12/23.

FAR WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IDAHO—State Hy. Dpt. Boise,
Duffy Reed Co., Twin Falls, Idaho, LB, **$199,740** roadway, roadmix bit. 11.519 mi. Marsing-Walters Ferry Rd., Owyhee Co.;
Sather & Sons, Yardley, Wash., LB, **$369,242**, roadway, bit. 2.91 mi. U. S. 95, Nez Pearce Co. Bids Apr. 13. CD 4/6.

▲ **Morrison-Knudsen Co.**, 319 Broadway, Boise, Idaho, was awarded contract for completion construction work of Box Canyon Dam on the Pend Oreille River, Ione Co., WASHINGTON, Total cost **$16,000,000** Pend Oreille Public Utility District, Newport, Wash. Former contract cancelled. CD 6/5/52, under CA.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **A. Balch**, 8050 35 Ave. N. E., Seattle, Wash., Day Labor, **$1,462,500**, 225 HOMES in Highlands addns., RENTON, WASH. CD 5/29/51.

CANADA

BIDS ASKED—BUILDINGS

Que., St. Laurent—GARAGE, etc.—B.A. 5/12—Municipality, City Hall, 1 story, bsmnt., 200x200 ft., concrete, steel, brick, garage and workshop, Cote Vertu. $200,000. R. J. Desjardins, 3605 Hochelaga St., Montreal, archt. CD 10/1/52.

▲ **Que., Montreal**—HIGH SCHOOL—B.A. 5/14—Bd. School Comrs., Pointe Claire, 3 story, 63x222 ft. and 63x90 ft., concrete, steel, brick high school, Pointe Claire. $1,000,000. E. I. Glance, 4086 Marlowe St., engr. Barott & Assocs., Canada Cement Bldg., archts. CD 11/5.

Ont., Ottawa—BARRACK BLOCK—B.A. 5/19—Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont., barrack block, H.M.C.S., Gloucester. $300,000. Plans deposit $100.

▲ **Ont., Toronto**—HOUSING—B.A. 5/21—Housing Auth. of City of Toronto, City Hall, 6 story, bsmnt., 72-

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suite each Regent Park Housing, River St. Area, Buildings Nos. 21 and 23 Type Y, $1,300,000. CD 7/27.

Que., Terrebone—SCHOOL—Bids Asked—School Comn. of Terrebonne, L. Gravel, secy., school, Masson and St. Sacrament Sts. $300,000. C. Grenier, 170 Geneva Cres., Mount Royal, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

McFarland Constr. Co. Ltd., Picton, Ont., CA, $338,225 paving Sussex St. George St. to Rideau Gate, OTTAWA, ONT. Municipality, City Hall, Ottawa, Ont. CD 8/21.

Lanark County, Perth, Ont. Own Forces. $153,112 road construction and repairs, PERTH, ONT. W. L. Dickson, Perth, Ont., engr.

BUILDINGS

LOW BIDS AND CONTRACTS

Newman Brothers Ltd., 4A Clark St., CA $600,000 St. Catherines high SCHOOL, Church Rd., Grantham Twp., ST. CATHERINES, ONT. Lincoln-Welland High School Bd., St. Catherines, Ont. Bids Apr. 13. CD 3/29.

▲ **Economy Constr. Co.,** 985 College St., Toronto, Ont., Owner Builds, $1,000,000, APARTMENT BLOCK, 9-15 Charles St. E., TORONTO, ONT. W. Shulman, 467 Spadina Ave., Toronto, Ont., archt.

Olmsted & Parker Constr. Co. Ltd., 121 Shaw St., Hamilton, Ont., CA, $600,000, HIGH SCHOOL, Carling Terrace, WINGHAM, ONT. Wingham High School Area Bd., Wingham, Ont. Bids Apr. 15. CD 4/7.

▲ **Robert Theberge,** 4252 Old Orchard Ave., Montreal, Que., Owner Builds, $3,500,000, 350 houses in HOUSING program on new streets near Chambly Rd., JACQUERS CARTIER, QUE.

▲ **Komo Constr. Co. Ltd.,** 1500 St. Vallier St., Quebec City, Que., CA, $6,000,000, 12 story, 96x108 ft. rein.-con., stone HOSPITAL, QUEBEC CITY, QUE. Hotel Dieu de Quebec, Cote du Palois, Quebec City, Que. E. H. Talbot, 3 Vieux Blvd., Giffard, Que., archt. CD 3/5/52.

▲ **Nap Trudel & Sons,** Ste. Irennee, Que., CA, $1,180,000 BARRACK BLOCKS 2 and 3, and 500-man MESS No. 1 at Army Camp, VALCARTIER, QUE. Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont. Bids Mar. 4. CD 2/15.

Proposed Projects

WATER SUPPLY

▲ **Calif., Manhattan Beach—City, 1400 Highland Ave.,** voted $1,300,000 bonds, water system imprvs. CD 4/2.

▲ **Colo., Fort Collins**—City, voted bonds Apr. 6, filter plant addn., transmission line and extension of water distr. sys. $1,500,000. R. W. Beck & Assocs., Independence Bldg., Colorado Springs, consult. engrs. and archts. CD 3/29.

▲ **Ind., Greensburg**—City, City Hall, 7 mi. water line to Big Flat Rock Creek. $1,000,000.

Mich., Greenville—City, City Council, voted $600,000 bonds, water sys., expansion distr. mains, Alfred G. Hanson, Michigan Theatre Bldg., Muskegon, consult. engr. CD 2/25.

▲ **O., Middletown**—Armco Steel Corp., 1939 Armco Ave., imprv. water supply sys., incl. clarifying sys., expanding mill scale collection basins, pumping stations, sedimentation beds and piping to recirculate water at East Works. $1,250,000.

▲ **Va., Winchester**—City, City Hall, voted $3,000,000 bonds Apr. 13, water supply sys., incl. treatment plant and pipe lines, Alexander Potter Associates, 50 Church St., New York, N. Y., consult. engrs. CD 10/27/50.

▲ **Wash., Anacortes**—City, City Hall, 5 Ramney-type wells, $568,000; 27,000 ft 36 in. pipe line from wells to Summit Park, $565,000; main from Summit Park to Shell Oil Refinery, $75,000. Carey & Kramer, 1917 1 Ave., Seattle, consult. engrs. CD 9/28.

SEWERS, WASTE DISPOSAL

▲ **Ind., Gary—Gary Sanitary District, City Hall** combination sanitary and storm sewers from Grand Calumet River at Rhode Island Ave to 9 Ave., $1,000,000; combination sanitary and storm sewers from Little Calumet River at 32 to 36 Aves. $1,000,000. Charles W. Cole, 220 W. La Salle St., South Bend, consult. engr. CD 11/20/46.

Mich., Whitehall—City, sewers, pumping station, sewage disposal plant, treatment facilities, $500,000, William & Works, 227 Ottawa Ave., Grand Rapids, consult. engrs.

▲ **N. C., Winston-Salem**—City, Ralph L. Dixon, secy., City Hall, bond election May 15, exten. enlarging, imprv. city's sewage disposal sys. $6,500,000.

O., Cincinnati—Bd. Comrs. Hamilton Co., Court House, combined sewer at St. Bernard and Elmwood Bloody Run, St. Bernard. $600,000. George Lemmell, co. engr.

▲ **O., Rocky River**—City, City Hall, 19120 Detroit Rd., expansion sewage treatment plant, West Lake Rd. incl. preaeration and sludge incineration. $1,300,000, John H. Puzenski, 228 Standard Bldg., Cleveland, Zone 14, county sanitary engr. John R. Cloyd, c/o owner, engr.

Ont., Toronto—York Twp., 2700 Eglinton Ave. W., laying 2 mi. storm sewers, (trunk storm sewer first project), 1½ mi. to serve Fairbanks, Silverthorn and Keelsdale Aves. $860,000. CD 4/12/51.

(Continued on page 91)

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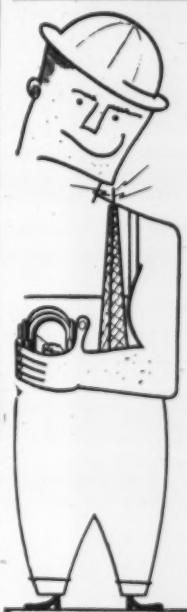

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UNITED STATES STEEL

(Continued from page 89)

BRIDGES

▲ **Ill., Cicero**—City, City Hall, voted bonds, bridge over Chicago, Burlington & Quincy R. R. yard at 52 Ave. $2,500,000. De Leuw Cather & Co., 150 N. Wacker Dr., Chicago, Zone 6, consult. engrs. CD 11/19/52.

▲ **O., Cincinnati**—City and State, Third Street Viaduct exten. over Eggleston Ave., $2,510,000, Nazelet & Erdal, Dixie Terminal Bldg., consult. engrs. T. Montgomery, city engr. CD 5/6/53.

STREETS AND ROADS

▲ **RHODE ISLAND**—State Dpt. P. Wks., Philip S. Mancini, dir. State Office Bldg., Providence,

Lincoln to Providence—exten. Louisquisset Pike, 4 mi. exten. $5,000,000. C. W. Riva Co., 511 Westminster St., Providence, consult. engr. CD 3/23/44.

EARTHWORK, WATERWAYS

Nebraska—Central Nebraska Public Power & Irrigation Dist., Hastings, extend and deepen canals to furnish addnl. water to consumers for irrigation purposes, Phelps and Kearney Counties, $500,000. George Johnson, c/o owner, ch. engr.

▲ **Wash., Seattle**—City, County-City Bldg., Seattle, Zone 4, 605 ft. diversion dam 150 ft. high on Skagit River at Gorge also 4 mi. highway and 180 ft. steel truss bridge, $18,000,000. CD 7/27.

▲ **New Brunswick**—New Brunswick Electric Power Comn., 527 King St., hydro-development on St. Johns River at Beechwood, 75 mi. northeast of Fredericton, $40,000,000. Shawinigan Engineering Co. Ltd., 600 Dorchester St., W., Montreal, Que., consult. engrs. CD 6/1/53.

AIRPORTS

▲ **Tex., Dallas**—AIRPORT TERMINAL—City, City Hall, Main and Harwood Sts., plans by Broad & Nelson, 505 N. Ervay St., Love Field Airport Terminal. $2,000,000. Forrest & Cotton, 803 Praetorian Bldg., consult. engrs. CD 3/16.

† **Va., Oceana**—AUDITORIUM, etc.—P. Wks. Office, Fifth Naval Dist., U. S. Naval Station, Norfolk, plans by Hayes, Seay, Mattern & Mattern, 163 W. Onley Rd., Norfolk, auditorium, fire station and utilities, Naval Air Station. $700,000.

▲ **N. S., Halifax**—CIVIC AIRPORT—Dpt. Transport, Govt. of Canada, Ottawa, Ont., civic airport. $1,200,000.

PUBLIC BUILDINGS

▲ **Calif., Fresno**—LIBRARY—Fresno Co., Court House, plans by Fred L. Swartz, Rowell Bldg., Fresno County Library, $1,550,000.

▲ **Calif., Sacramento**—COUNTY OFFICE, etc.—Sacramento Co., Court House, bond election June 8, county office bldg., $1,000,000; jail road camp facilities addns., $800,000; remodeling county jail, $250,000, and remodeling court house, $500,000. CD 9/24/45.

▲ **Conn., Bolton, Andover, Hebron & Marlboro**—SCHOOL—Temporary Regional High School Planning Com. of Towns of Andover, Bolton and Hebron, plans by Carl J. Malmfeldt & Assocs., 36 Pearl St., Hartford, regional high school, Gagliardone Farm on Hebron Rd. $1,898,000. CD 4/22/53.

Idaho, Weiser—SCHOOLS—School Bd., Weiser, bond election May 27, 12-room school on east side and 6-room school on west side. $600,000. R. G. Thompson, Weiser, archt.

Idaho, Weiser—SCHOOL—School Bd., Weiser, bond election May 28, 2 grade schools. $600,000. R. G. Thompson, Weiser, archt.

Mass., Shrewsbury—SCHOOL—Town, Supt. Schools, Church Rd., Junior, Senior High School, Oak St., $600,000. CD 7/26/51.

▲ **Mich., Detroit**—SCHOOLS—City, Arthur Dondineau, supt. Schools, Bd. Educ., 1354 Broadway, brick, steel, concrete Northwest High School Pembroke and Stahelin to serve Eight Mile Southfield area, $5,000,000; brick, steel, concrete Northeast High School, Seven Mile Rd. between Hoover and Bradford Sts., $5,000,000; brick, steel, concrete Intermediate School in block bounded by Canfield, St. Antoine, Willis and Hastings Sts., $4,000,000.

▲ **Mich., Livonia**—SCHOOLS—City, Bd. Educ., $4,000,000 bond election May 4, Junior and Elementary High Schools.

Mich., St. Clair Shores—SCHOOL—City, South Lake School Dist., voted $700,000 bonds, school. CD 3/30.

Mich., Marysville—SCHOOL—City, City Council, voted $800,000 bonds, financing program. CD 3/25.

▲ **Minn., Duluth**—SCHOOLS—Bd. Educ., H. J. Forsberg, clk., voted $5,600,000 bonds, for schools incl. new Junior High school on Orden Field, $1,000,000; Junior High School in neighborhood of Elizabeth St., $900,000; gymnasium with stage, chemical laboratory and study hall at East High School, 29 Ave. East and 4 St., $350,000; remodeling, modernizing, etc. and constr. Washington Junior High School addn., Lake Ave. North and 3 St., $500,000; new elementary school to replace Ely School, Central Ave. and W. 6 St. and remodeling West Junior High School $1,100,000; Endion elementary school to replace present bldg., 1803 East First St., $300,000.

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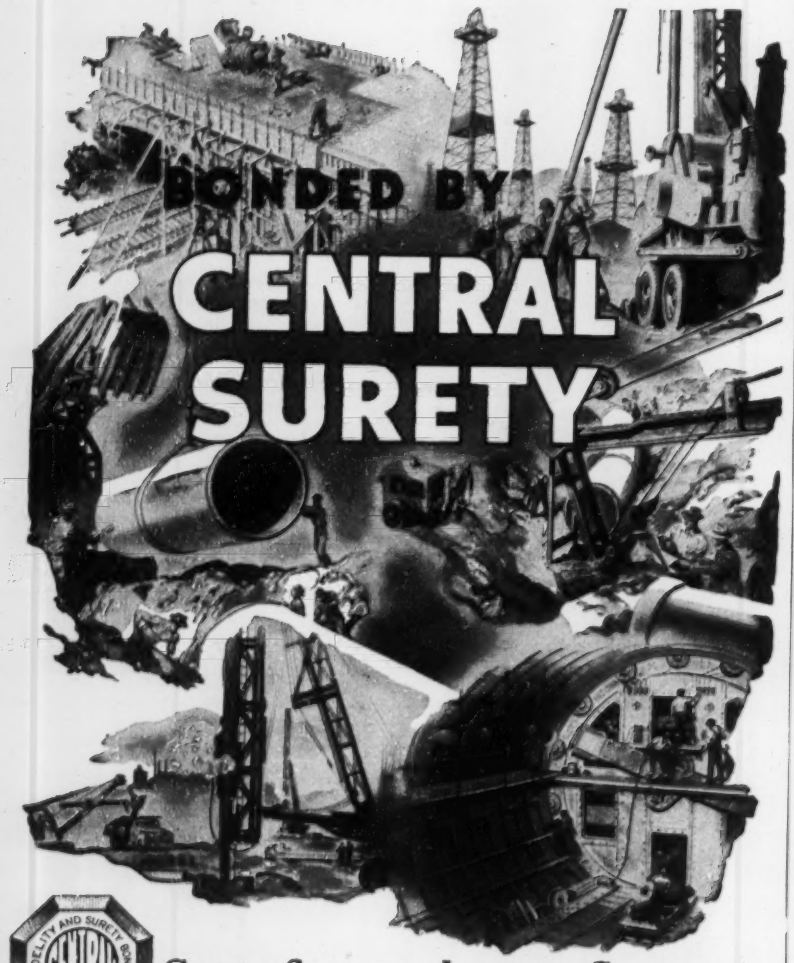

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† N. Y., Watervliet—GAGE STORAGE, etc.—U. S. Eng., 80 Lafayette St., New York, Zone 13, plans by Raymond & Rado, 101 Park Ave., New York, Zone 17, gage storage and design buildings, Watervliet Arsenal. $500,000-$1,000,000.

O., Bay Village—SCHOOL—Bay Village School Bd., Chas. M. Patterson, supt., 502 Cahoon Rd., $735,000 bond election May 4, elementary school, Mellenbrook, Foley & Scott, 26 Front St., Berea, archts.

O., Fairview Park—SCHOOL—Fairview Park School Bd., Lewis F. Mayer, supt., 4507 W. 213 St., $900,000 bond election May 4, elementary school near W. 220 St., present high school addn. Fulton, Krinsky & DelaMotte, 6014 Euclid St., Cleveland, archts.

O., Stow—SCHOOLS—Bd. Educ., 2 grade schools, East Graham Rd. and North River Rd. $600,000.

▲ O., Wooster—SCHOOLS—City, Wooster School Bd., $1,500,000 bond election Nov. 2, elementary school and addns. to existing facilities. CD 3/1.

▲ Pa., Phila.—HOSPITAL—General State Auth., 18 and Herr Sts., Harrisburg, Lankenau State Hospital imprvs., Corinthian and Girard Aves. to convert into tuberculosis sanitorium, $2,000,000. Engineering Consultants, 843 N. 19 St., consult. engrs. A. F. Jones, c/o owner, engr. CD 3/8.

▲† Pa., Phila.—GENERATING PLANT, etc.—U. S. Eng., 121 N. Broad St., steam generating plant, electric distr. sys., and distr. sys. expansion., Frankford Arsenal. $3,000,000. Albert C. Wood Assocs., Inc., 1411 Walnut St., consult. engr.

▲† Pa., Wampum—STORAGE FACILITIES—U.S. Eng., 121 N. Broad St., Phila., storage facilities at Medusa Mine. $5,000,000. Michael Baker, Jr., Inc., 115 Shields St., Box 111, Rochester Pa. consult. engr.

▲ Tex., Dallas — HIGH SCHOOL — Dallas Independent School Dist., 3700 Ross St., plans by Fooshee & Cheek, 1911½ N. Harwood St., John B. Hood Junior High School, Hume Dr. and Pleasant Mound St. $1,365,000. CD 10/24/52.

▲ Wash., Colfax—COURTHOUSE—Whitman Co., Court House plans by Whithouse & Price, Hutton Bldg., Spokane, court house, $1,000,000.

▲ Wash., Ellensburg—SCHOOL—School District No. 401, Ellensburg, plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, Senior High School, $1,300,000. CD 3/17.

▲ Wash., Yakima—SCHOOL—School Bd. Dist. 208, Yakima, voted bonds, high school, $1,500,000. J. W. Maloney, Larson Bldg., archt. CD 3/3.

COMMERCIAL BUILDINGS

▲ Calif., Bakersfield—DWELLINGS—Dunsmar Constr. Co., 6751 Stanton Ave., Buena Park, plans by L. C. Major & Assocs., 11015 S. Paramount Blvd., Downey 107 frame, stucco dwellings in Tract 1697, $1,000,000.

▲ Calif., Los Angeles—STORE—Broadway—Hale Stores, Inc., c/o Broadway Department Stores, Inc., 401 S. Broadway, plans by Welton Becket, FAIA, & Assocs., 5657 Wilshire Blvd., and Raymond Loewy Assocs., 8756 Hollaway Dr., store at Panorama City Shopping Center in San Fernando Valley, $4,500,000.

▲ Calif., Whittier—HOSPITAL—Community Hospital Inc., c/o Walker, Kallonzes & Klingerman, 488 S. San Vicente Blvd., Los Angeles, 3 story, rein.-con. hospital, $2,000,000.

▲ Mass., Beverly—LIBRARY, etc.—Gordon College of Theology & Missions, A. O. Wilson Sr., chn. School Bldg. Comn., 30 Evans Way, Roxbury, plans by Monahan Meikle & Johnson, 255 Main St., Pawtucket, R. I., library, admin. bldg., 2 dormitories. $1,000,000.

▲ Mo., Kansas City—SHOPPING CENTER, etc.—Joseph A. Bruening Co., Bd. Trade Bldg., Kansas City, Mo., develop shopping center, hotel, apartments, roads, streets and site development near Hy. 169 and Vivion Rd. $1,000,000.

Mo., Ladue (St. Louis 24 P.O.)—RESIDENCES—Ben Goldberg, 18 S. McKnight Rd., St. Louis, Zone 24, 16 residences on 12 acre tract on east side of Price Rd. about 1,000 ft. north of Ladue Rd. $800,000.

▲ N. J., Trenton—SHOPPING CENTER—Trenton Redevelopment Auth., City Hall, plans by Society of Architects, 36 W. Lafayette St., commercial shopping center development in Coolport Area. $1,000,000.

▲ N. Y., Arverne—APARTMENTS—A-Jay Realty Co., c/o Kavy & Kavovitt, archts., 44 Court St., Brooklyn, Zone 2, 3 six story apartments, Beach 59 St., southeast corner and southwest corner of Beach Channel Dr. Beach 57 St. northwest corner of Arverne Blvd. $2,160,000.

▲ N. Y., New York—APARTMENT—Estate of Peter A. H. Jackson, Inc., 106 Lexington Ave., plans by Henry G. Greene, 855 Sixth Ave., New York Zone 1, 18 story apartment 817-25 Third Ave. $2,700,000.

▲ N. Y., New York—APARTMENT—Edgar A. Levy, c/o H. I. Feldman, archt., 415 Lexington Ave., New York, Zone 17, 17 story apartment 315-21 E. 72 St. $1,000,000.

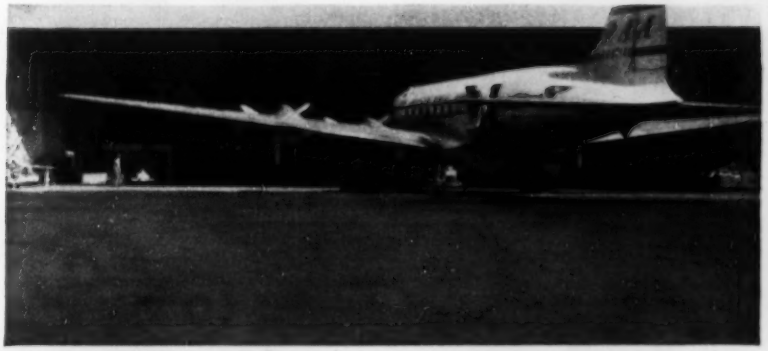
O., Akron—BRANCH BLDGS.—Bd. Trustees, Young Men's Christian Assn., 80 W. Center St., plans by Suppes & Wiley, Permanent Title Bldg., Firestone Park Y.M.C.A. Bldg. addn. and East Akron Y.M.C.A. Bldg. addn.; plans by Wagner & Luxmore, Permanent Bldg., West Akron Y.M.C.A. Bldg., and Y.M.C.A. Bldg. addn. in nearby Cuyahoga Falls. $715,000.

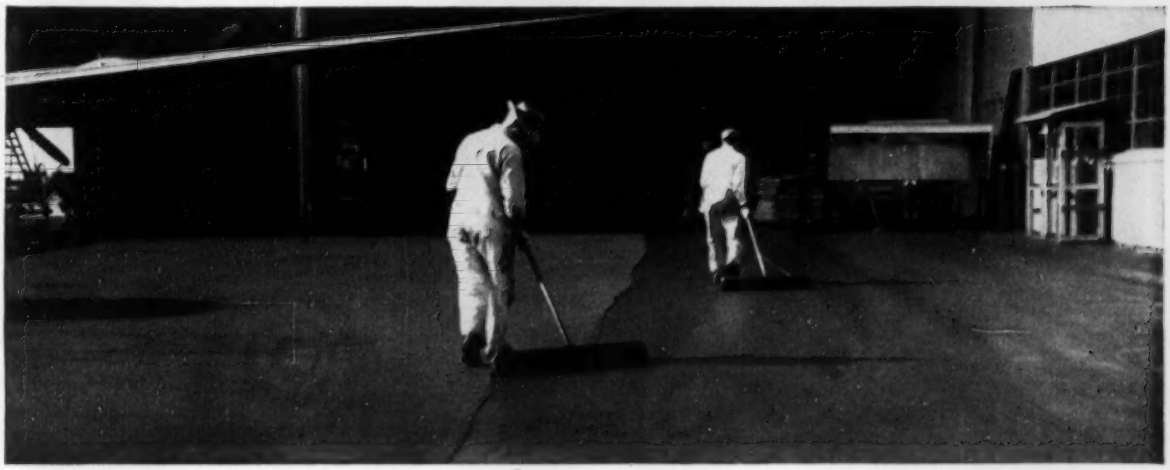
▲ O., Middleburg Heights—COMMERCIAL and MEDICAL—Daniel D. Sill, 2207 Cranston Rd., Cleveland, 2 story, masonry commercial and medical bldg., Pearl Rd. near W. 130 St. $2,000,000.

Tex., Brownwood—DORMITORY, etc.—Howard Payne College, Brownwood, plans by Will N. Noonan, Travis

(Continued on page 94)

Aircraft fueling area sealed for less than 6¢ per sq. ft.





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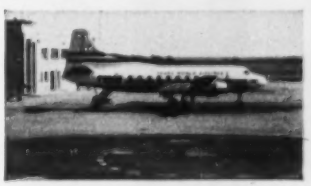

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(Continued from page 92)

Bldg., San Antonio, 124-unit girls dormitory, kitchen and dining room for entire school. $900,000. CD 5/13/53.

▲ **Tex., Houston**—DWELLINGS—Ralph F. Beeler, 4574 Griggs Rd., Houston, Sec. 1, Unit 1, 41 cedar shake dwellings, $390,000; Sec. 1, Unit 2, 52 cedar shake dwellings, $495,500; Sec. 1, Unit 3, 48 douglas fir and California redwood exterior dwellings, $478,100; Sec. 1, Unit 4, 38 Douglas fir exterior dwellings, $391,600; Sec. 1, Unit 5, 55 California redwood dwellings, $555,500; Sect. 1, Unit 6, 58 cedar shake douglas fir dwellings, $570,175; Sec. 1, Unit 7, 36 cedar shake, California redwood dwellings; $360,750; Sec. 1, Unit 8, combination of cedar shake California redwood and douglas fir extension dwellings, $345,000; concrete slab fdn. for all. This is first section of 500 homes out of a total of 2,500 proposed. Tom D. Heaney, 2113 State St., Houston, consult. engrs.

▲ **Tex., San Antonio**—APARTMENT—Mission Oaks, c/o Centex Constr. Co., 4911 Greenville St., Dallas, apartment-housing proj., 160 one-bedroom apartments, 164 two-bedroom apartments, 2 story brick asb. siding constr., between Broadway and Fort Sam Houston, 16-acre site. $1,500,000. Holmes Sicklen, Milam Bldg., consult. engr.

▲ **Va., Norfolk**—SHOPPING CENTER—Irwin Whorton, c/o Nusbaum Real Estate, 148 Granby St., plans by A. N. Salkowitz, 37-60 82 St., Jackson Heights, N. Y., shopping center, $7,000,000.

Wash., Anacortes—HOUSES—Modern Home Builders, 3849 34 Ave. W., Seattle, 70 houses. $700,000.

▲ **Wis., Milwaukee**—BANK REMODELING—First Wisconsin National Bank, 743 N. Water St., plans by E. J. Kraus, c/o owner, remodeling in bank. $1,500,000.

▲ **B. C., Victoria**—SHOPPING CENTER—Buford Development, Inc., 6401 Carleton St., Seattle, Wash., U. S. A., shopping center. $1,500,000.

INDUSTRIAL BUILDINGS

▲ **Mo., Kansas City**—WAREHOUSES—St. Louis-San Francisco Railway Co., 906 Olive St., St. Louis, Zone 1, and Charles F. Curry Real Estate, 921 Baltimore St., Kansas City, Mo., warehouses on 87-acre site. $12,000,000.

▲ **Neb., Omaha**—TRAINING SCHOOL—General Motors Corp., General Motors Bldg., Detroit, Mich., industrial training school. Approx. $1,000,000.

▲ **O., Cincinnati**—PLANT—The Cincinnati Enquirer, Inc., 617 Vine St., plans by Woodie Garber & Assoc., 104 Wm. Howard Taft Rd., 1 story, newspaper publishing plant, Gilbert Ave. $3,500,000. CD 2/17.

▲ **O., Eastlake**—COAL HANDLING EQUIPMENT, etc.—Cleveland Electric Illuminating Co., Public Square, Cleveland, Zone 1, coal handling and processing equip. at Eastlake Power Plant, incl. heater, dryer, pulverizer and air and water pollution control equip. $2,000,000. Clarence A. Dauber, dir. of civil and mech. engr. C. E. I. CD 12/30/48.

▲ **Tex., Grand Prairie**—WAREHOUSE, etc.—Safeway Stores, 4929 Beeman St., plans by Charles E. Keyser, 609 Minnesota Ave., Kansas City, Kan., masonry warehouse, $2,750,000; mechanical repair shop, $90,000. Berry & Manning, 3722 Bowser St., Dallas, assoc. archts.

Tex., Houston—PLANT—Pittsburgh Plate Glass Co., 101 Crawford St., plant, Armour Dr., 670 ft. east of Lockwood Dr. $650,000.

▲ **Va., Richmond**—HEADQUARTERS BLDG. and LABORATORY—Reynolds Metals Co., Reynolds Metal Bldg., Zone 19, 16 story headquarters bldg. and experimental laboratory in West End, near here. Approx. $2,000,000.

Va., Richmond—OIL STORAGE PLANT, etc.—Texas Co., Olney Rd. and Granby St., Norfolk, 6 m.g. bulk oil storage plant and terminal, warehouse, pipe lines, near here. $750,000.

▲ **Wash., Spokane**—SERVICE CENTER—Washington Water Power Co., W. 825 Trenton St., Spokane, Zone 6, service center. $1,200,000.

UNCLASSIFIED

Calif., Hayward—PARKING—City, City Hall, voted $750,000 bonds, off-street parking. CD 3/18.

Kentucky—RURAL DISTRIBUTION LINES—Owen County Rural Electric Co-operative, Owenton, 57 mi. rural distr. lines, sys. imprvs., Owen Co. $630,000. CD 9/18/47.

▲ **Louisiana and Mississippi**—OIL PRODUCTS PIPE LINE—Texas Eastern Transmission Corp., Texas Eastern Bldg., Shreveport, La., 216 mi. 24 in. oil products pipe line from Castor, La. to owner's terminus at Kosciusko, Miss. $16,500,000.

▲ **Nebraska**—PIPE LINE—Kansas-Nebraska Natural Gas Co., Phillipsburg, Kan., 223 mi. pipe line, pumping and other facilities to increase capacity in Center and northeast Nebraska. $4,096,890. S. D. Ford, Hastings, c/o owner, ch. engr. CD 3/23.

O., Cleveland—PACHYDERM BLDG.—City, Dpt. P. Properties, City Hall, Zone 14, plans by Hays & Ruth Playhouse Square Bldg., pachyderm bldg., Cleveland Zoo, $600,000. Thomas H. Jones, comr. Dpt. Design & Constr. CD 11/7/52.

▲ **Texas**—OIL PRODUCTS PIPE LINE—Texas Eastern Transmission Corp., Texas Eastern Bldg., Shreveport, La., 113 mi. 16 in. welded joint oil products pipe line from area Beaumont to intersection Provident City-Castor line near Lufkin, Jefferson Co. $5,085,000.

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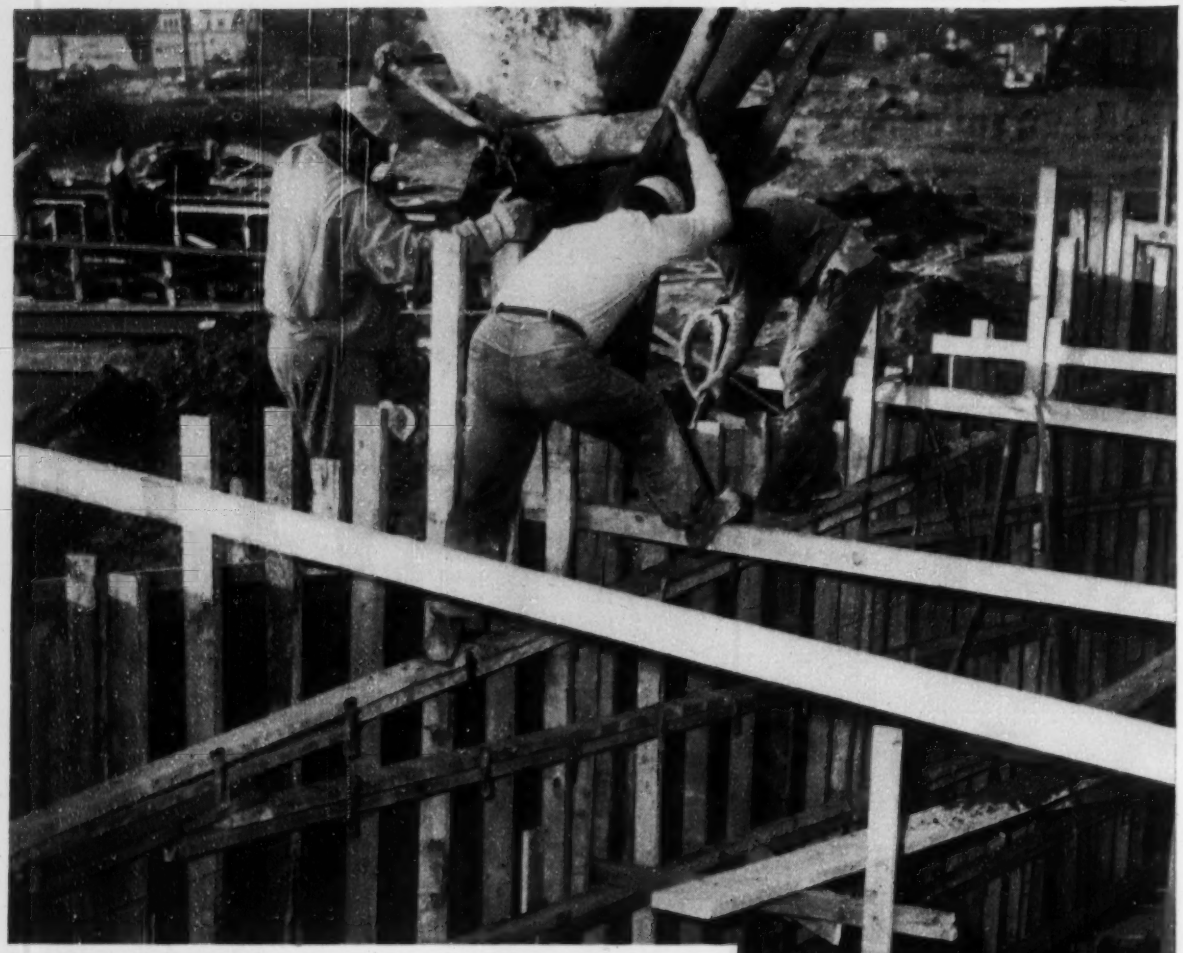

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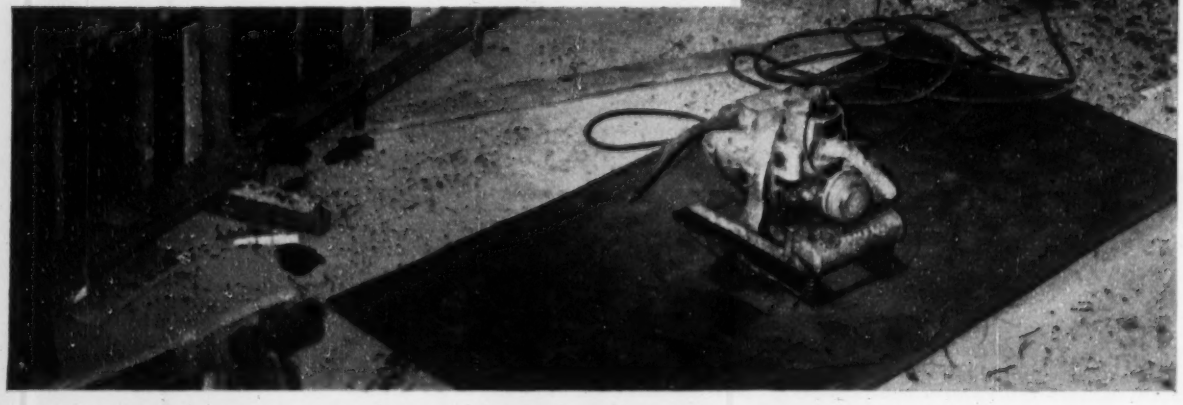


Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 11 Massachusetts
STREETS AND ROADS
May 11 Massachusetts

▲† R. I., Newport—FLEET BERTHING FACILITIES—B.A. 5/18—Dpt. Navy, 495 Summer St., Boston, Mass., fleet berthing facilities at U. S. Naval Base, NOY, 73788, Spec. 34829. $4,000,000. (Correction—Bids not cancelled as previously reported) CD 4/9.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 25 New Jersey-Pennsylvania
STREETS AND ROADS
May 18 New Jersey May 20 New York
May 21 Pennsylvania

▲ NEW JERSEY-PENNSYLVANIA—B.A. 5/25—Pennsylvania Turnpike Comn. & New Jersey Turnpike Auth., Administration Bldg. of Pennsylvania Turnpike Comn., 11 North Fourth St., Harrisburg, Pa.,
Contract PN-1, constr. two river piers to be located within the stream bed and 2 land piers, one on Pennsylvania shore and one on New Jersey shore.
Contract PN2, constr. 16 land piers and 1 abutment all on Pa. side of river;
Contract PN-3, constr. 10 land piers and 1 abutment all on New Jersey side of river, above work in connection with construction of Delaware River Turnpike Bridge as a connection between the Pennsylvania and New Jersey Turnpikes. Plans deposit $20 for Contract PN-1, PN-2 and PN-3. Plans deposit $35, for Combination PN-2-3; and Plans deposit $50 for Contract PN-1-2-3 combination; adv. ENR 5/6. CD 4/2.

BIDS ASKED—BUILDINGS

▲ Pa., Pittsburgh—APARTMENT—B.A. 5/10—University Square, Inc., Shenley Hotel, 8 story, bsmnt., steel apartment. $4,500,000. Arthur E. Tennyson, 666 Washington Rd., archt.

▲ Pa., Abington—HOSPITAL — B.A. 5/18 — Abington Memorial Hospital, Abington, X-ray and maternity hospital bldg. addns. $1,903,896. Jack S. Steel Co., 1300 Hunting Park Ave., engr. and archt. CD 9/28/51.

▲ Pa., Phila.—HOME—Bids Asked—Pa. Dpt. Procurement, City Hall Annex, Phila., "Riverview" Home for The Indigent. $3,000,000. Gilboy & O'Malley, engrs., and Alfred Clauss, archt., both at 1810 Rittenhouse Sq., Phila., Pa. CD 7/16.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, Zone 1,
Lane Constr. Co., 37 Colony St., Meriden, Conn., CA $5,400,000, est. $7,221,000, c. conc. 7.74 mi. b. conc. opt. 1.07 mi. dual type pavement (cement and b. conc.), 0.55 mi. grading, drainage 0.89 mi., misc. work 0.13 mi., seven Hy. Sep. Comp., I-beam 180.1 ft., 155.6 ft., 243.3 ft., 127.4 ft., 200.9 ft., 218.3 ft., 179.3 ft., one R. R. Sep. plate girder 185.5 ft., one bridge built-up stringer 388 ft., one bridge twin concrete box 22.5 ft. each, 10.38 mi., Rochester-Bushnell Basin, Pt. 1, S.H. 8223. S.H. 766 and SH 60 Interchanges; Pittsford-Palmyra Pt. 1, SH 766, Despatch-Pittsford Pt. 2, SH 481, Fairport (Brighton-Fairport Pt. 2), SH 60, Proj. U-UG-1107 (1), Contr. No. FASH 54-1; FARC 54-39, Monroe Co. CD 4/5, under LB;
Cold Spring Constr. Co., 3 Jackson St., Akron, N. Y. CA $538,768, est. $575,000, 7.68 mi. Pavilion-Greigsville, Pts. 2 and 3, SH 1777, Greigsville-Piffard, SH 1777-A, Geneseo-Piffard, SH 718, FARC. 54-44, Livingston and Wyoming Counties;
Berlanti Constr. Co., Inc., 15 Oakland Ave., Harrison, N. Y., CA $1,911,631, est. $2,040,000. 2.56 mi. Spring Valley-Knapps Corners, SH 689, Knapps Corners-Nyack, SH 5178, FARC. 54-41, Rockland Co.;
C. D. Murray Co., Inc., Lafayette Bldg., Syracuse, N. Y. CA $895,441, est. $982,000, 8.29 mi. Auburn-Seneca Falls, Pts. 2 and 1, S.H. 5042-590, FARC. 54-18, Cayuga and Seneca Counties. Grand total $8,745,840. Bids Apr. 1. CD 4/6, under LB.

▲ Andrew Catapano & Co., 88-43 76 Ave., Glendale, N. Y. CA $3,243,930. Contr. No. 2 constr. Long Island City Intercepting Sewers, Bowery Bay Sewage Treatment Works exten., Queens Boro, ASTORIA, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. CD 3/5, under LB.

▲ S. S. Silberblatt, Inc., 25 W. 45 St., New York 19, N. Y. CA $3,959,100. Constr. 370-003, Hangar No. 8; Tufano Constr. Corp., 32-17 Lawrence St., Flushing, N. Y. CA $1,298,000. Contr. 370-002 paving, and utilities for Hangar No. 8 at New York International Airport, IDLEWILD, N. Y. The Port of New York Auth., 111 8th Ave., New York 11, N. Y. CD 2/25, under LB.

▲ Racquette River Constr. Co., Potsdam, N. Y., CA. Approx. $5,000,000. concrete dam and penstock and power house, Rainbow Falls hydro-development on Racquette River, St. Lawrence Co., POTSDAM, N. Y. Niagara Mohawk Power Corp., 250 Park Ave., New York 17, N. Y. CD 6/6/52, under Industrial Bldgs.

▲ NEW JERSEY—State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,
George M. Brewster & Sons, 275 W. Fort Lee Rd., Bogota, N. J., LB $7,804,829, approaches Delaware River Bridge, Fed. Proj. U-193 (1), Camden Co. Bids Apr. 27. CD 4/1.

▲† Tecon Corp., Box 206, Wrightstown, N. J., LB $2,644,709, apron, taxiway, and warm-up pad exten., widening and strengthening of N.E.-SW Runway, McGuire Air Force Base, ENG-36-109-54-204, WRIGHTSTOWN, N. J. U. S. Eng., 121 N. Broad St., Phila., Pa. Bids Apr. 20. CD 4/2.

▲ PENNSYLVANIA—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,
Ralph Myers Contg. Co., Pitcairn, Pa., CA, $2,037,077. divided hy. 30,931 ft. crushed aggregate base with bit. surf. variable in width each side of concrete divisor, one I-beam and 2 plate girder bridges, T.R. 31 Westmoreland Co. Bids Apr. 9, awarded Apr. 26. CD 4/13, under LB.

▲ Rust Eng. Co., 575 6 Ave., Pittsburgh, Pa., LB, $3,774,743, est. $4,953,772, sewage disposal system addns., alterations, foot of Wallace St., ERIE, PA. Erie Sewer Auth. City Hall, Erie, Pa. Bids Apr. 20. CD 3/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Spade Homes, c/o Salvator S. Calafati, archt., 4th St., East Northport, N. Y. Owner Builds. $2,000,000. 200 HOMES, tract on Holmes Ave. off Southern State Pkway, BABYLON, N. Y.

▲ Massapequa Shore Homes, c/o Trylon Realty Co., 98-89 Queens Blvd., Forest Hills, N. Y. Owner Builds. $3,000,000. 200 HOUSES on tract at foot of Division Ave., south of Merrick Rd., MASSAPEQUA, N. Y.

▲ Empress Gardens Homes, c/o Long Island Homes, 168-12 Hillside Ave., Jamaica, N. Y. Owner Builds. $3,000,000. 180 HOUSES on tract on Waverly Ave. east of Seaford Ave., WANTAGH, N. Y.

▲ Brookwood Village, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $6,000,000. 500 HOUSES, 154-acre tract, Montauk Hy., WEST SAYVILLE, N. Y.

▲ Leo Butler Co., Box 97, College Park, Md., LB, $2,109,000, armor plate finishing PLANT, railroad tracks and roadways, COATESVILLE, PA. Lukens Steel Co., Coatesville, Pa. Gilboy & O'Malley, 1810 Rittenhouse Sq., Phila., Pa., engrs. and archts. CD 4/17/51.

▲ Wark & Co., 1920 Sansom St., Phila., Pa., LB, $1,989,000 general contract JUNIOR HIGH SCHOOL and SENIOR HIGH SCHOOL addns., LANSDALE, PA. North Penn Joint School Bd., Lansdale, Pa. Bids Apr. 20. CD 4/2.

▲ Catalytic Constr. Co., 1528 Walnut St., Phila., Pa. CA, $14,000,000. design and construct 27,000 bbl. per day HOUDRIFLOW CATALYTIC CRACKING UNIT and 18,000 bbl. per day HOUDRIFORMER CATALYTIC UNIT to produce gasoline components, MARCUS HOOK, PA. Sun Oil Co., 1608 Walnut St., Phila., Pa.

▲ Matthew H. McCloskey, Jr., 1620 W. Thompson St., Phila., Pa. Own Forces. $10,000,000. 20 story APARTMENT, Penn. Blvd., 18 and 19 Sts., PHILA., PA.

▲ Kerby Saunders, Inc., 630 W. 52 St., New York, N. Y., CA, $2,000,000, HOTEL, PHILA., PA. Bellevue Stratford Hotel Co., Broad and Walnut Sts., Phila., Pa. CD 6/23.

▲ George A. Fuller Co., 597 Madison Ave., New York, N. Y., CA Approx. $5,000,000. administration, office and laboratory for pharmaceutical PLANT, WEST CHESTER, PA. Wyeth International, Ltd., 1401 Walnut St., Phila., Pa. Skidmore, Owings & Merrill, 575 Madison Ave., New York, N. Y., archts.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 14 Kentucky
STREETS AND ROADS
May 12, 26 Louisiana May 14 Kentucky

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ R. P. Fransworth & Co., Inc., and Silas Mason Co., 1515 S. Salcedo St., New Orleans, La. LB $4,354,000. State project 283-09-01, F. A. Proj. No. U409 (3). Harvey Canal tunnel, State Rte. No. 2200, Jefferson Parish, LOUISIANA. State Hy. Dpt., Highway Office Bldg., Baton Rouge, La. Bids Apr. 28. CD 4/9.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Morell Constr. Co., Route 6, Alexandria, Va., CA, $20,000,000, 1,200 homes, garden-type APART-

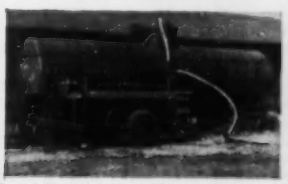
GRACE

3 sweeper models, axle, engine or tractor powered.

Sheepsfoot Rollers 250 to 600 psi.

GRACE Asphalt and Compaction Equipment

Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.



Rapid Fire circulating heaters heat and unload large tanks of asphalt.

Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.

Pneumatic rollers 7 to 50 tons.

W. E. GRACE MFG. CO.
6015 S. LAMAR, DALLAS, TEXAS

SIKA STOPS LEAKS FAST

...AND SIMPLY, TOO...

Sika can seal leakage through any concrete structure against pressure. The Sika method is quick, sure and long-lasting.

Here is all you do.

1. Hack and clean surface.
2. Mix quick-setting Sika liquid and portland cement.
3. Use Sika No. 4A mortar for sealing seepage and diverting water to bleeder holes. (For air-placed mortar use Sigunit.)
4. Use Sika No. 2 mortar (sets in 20 seconds) to plug bleeders.
5. After sealing all leaks, apply a protective cement coat over entire surface.

For 30 years Sika compounds and methods have helped solve concrete and masonry problems ranging from the production of high quality concrete to the sealing of joints or cracks subject to severe movement and pressure.

Additional Sika compounds cover the following specific problems: TO SEAL LEAKS AGAINST PRESSURE, TO SEAL JOINTS OR CRACKS, TO REPAIR NON-LEAKING SURFACES, TO REPAIR STRUCTURAL EXTERIORS, TO PLACE GUNITE OR PRESSURE GROUT, TO PRODUCE HIGH QUALITY CONCRETE.

Ask Sika's Engineers for details and recommendations.

SIKA

Sika CHEMICAL CORPORATION
35 GREGORY AVENUE
PASSAIC, NEW JERSEY

BRANCH OFFICES: CHICAGO • PITTSBURGH • SALT LAKE CITY MONTREAL, CANADA • PANAMA CITY, PANAMA

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MENTS, SHOPPING CENTER and sewage treatment plant, FAIRFAX, VA. Rose Hill, Inc., Route 6, Alexandria, Va.

▲ **H. L. Coble Constr. Co.,** Box 2040, Greenboro, N. C., CA $13,000,000. cigarette FACTORY, incl. tobacco research laboratory GREENSBORO, N. C. P. Lorillard Co., 119 W. 40 St., New York, N. Y. CD 4/8

▲ **R. P. Farnsworth Co., Inc.,** 151 S. Salcedo St., New Orleans, La. CA $2,043,868. 7 story, masonry, steel OFFICE and STORE, BATON ROUGE, LA. The Third & Laurel Realty Co., c/o Bodman & Murrell & Smith, archts., 1175 Nicholson Dr., Baton Rouge, La. Awarded Apr. 15. CD 4/28.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 12 Michigan — May 18 Wisconsin
May 25 Ohio
STREETS AND ROADS
May 11, 25 Ohio — May 12 Michigan
May 18 Wisconsin

BIDS ASKED—BUILDINGS

▲ **O., Cincinnati**—SCHOOL—B.A. 5/18—Bd. Educ., 608 E. McMillan St., 2 and 1 story. brick, rein.-con., steel Cumminsville Junior High School, Beechhill and Langland Aves. $1,800,000. Plans deposit $50. Schatz, Elliston, Hall, McAllister & Stockwell, 706 Walnut St., engrs. and archts. CD 2/27/53.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Charles V. Maescher,** 2106 Florence Ave., Cincinnati, O. CA Est. $1,000,000. 1 story AUTO AGENCY, Gilbert Ave. at Lane Seminary grounds, CINCINNATI, O. Thomson Bros., Inc., 1617 Reading Rd., Cincinnati, O. A. M. Kinney, Inc., Vernon Pl., Cincinnati, O., engr.-archt.

▲ **Cross Lake Realty Co.,** Antioch, Ill. Own Forces. $5,000,000. 300 HOMES, 190 acres at Cross Lake, ANTIOCH, ILL.

▲ **Ira Hotchkiss Co.,** 15030 Wyoming St., Detroit 38, Mich. Owner Builds. $1,900,000. 180 brick HOUSES, between Ten Mile Rd. and Stephens west of Hayes St., EAST DETROIT, MICH.

▲ **Peter W. Decker,** 520 West Fort St., Detroit 26, Mich. Owner Builds. $2,700,000. 350 single HOUSES, area south of 13 Mile Rd. and west of Stepehnson Hy., ROYAL OAK, MICH.

▲ **Howard & Klein,** 18901 Grand River St., Detroit, Mich. Owner Builds. $2,900,000. 260 brick HOUSES, east of John R. and north of Farnum Sts., ROYAL OAK, MICH.

▲ **Lipton Constr. Co.,** 12 Mile Rd. and Campbell, Royal Oak, Mich. Owner Builds. $2,000,000. 200 HOMES in 12 Mile Rd. section east of Campbell, ROYAL OAK, MICH.

▲ **Carl R. Sams,** 1256 Penobscot Bldg., Detroit, Mich. Owner Builds. $4,900,000. 495 brick HOMES, east of Edwards and north of Gardenia, ROYAL OAK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 13 Kansas — May 18 Texas
STREETS AND ROADS
May 11 Colorado — May 13 Kansas, Nebraska
May 14 Minnesota — May 18, 19 Texas

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. A. Jones Constr. Co.,** 209 W. 4 St., Charlotte, N. C., LB, $7,995,000. New Lock No. 19 (Stage II) at Mississippi River, Keokuk, Inv. 11-117-54-25, IOWA. U. S. Eng., Clock Tower Bldg., Rock Island, Ill. Bids Apr. 15.

▲† **Tecon Corp.,** 1201 Main St., Dallas, Tex. LB $2,951,036. taxiway, apron and airfield facilities Sedalia Air Force Base, Inv. 23-208-54-56, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Apr. 23. CD 4/7.

▲ **Platte Pipe Line Co.,** 106 W. 14 St., Kansas City, Mo. Owner Builds. $2,700,000, expansion, incl. new stations at Moorefield and Deshler, Neb., Hiawatha, Kan., and Bosworth, Mo. enlarge stations at Gurley, Ogallala and Holdrege, Neb., Marysville, Kan. and Gower, Mo., NEBRASKA, KANSAS, MISSOURI.

▲ **O. R. Burden Constr. Corp.,** 6702 E. 21 St., Tulsa, Okla., CA, $1,825,000, 60 mi. 12 in. welded joint crude oil line running from owner's Sour Lake-Lake Charles main to near city limits of Houston, TEXAS. Cities Service Pipe Line Co., M. Esperson Bldg., Houston, Tex. CD 3/13/52.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **J. E. Dunn Constr. Co.,** 929 Holmes St., Kansas City, Mo. CA Est. $20,000,000. eight two story OFFICE bldgs., 2 story HOTEL, 4 SHOPPING CENTER BLDGS., 900 APARTMENT UNITS, 350 single FAMILY RESIDENCES on 320 acre tract, Russell and Vivion Rds., KANSAS CITY, MO. Jos. A. Bruening Co. & J. E. Dunn Constr. Co., Bd. Trade Bldg., Kansas City, Mo. Awarded Apr. 19. CD 4/23.

▲ **Preston Constr. Co.,** 575 Mission St., Oakland, Calif., CA, $2,740,000, WAREHOUSE and REPAIR SHOP GRAND PRAIRIE, TEX. Safeway Stores, 1804 Alpine St., Dallas, Tex. Chas. E. Keyser, 609 Minnesota St., Kansas City, Kan., archt. Berry & Manning, 7322 Bowser St., Dallas, Tex., assoc. archts. CD 4/20.

▲† **Robert E. McKee,** Box 651, Albuquerque, N. M., CA $1,906,480, A.E.C. Group 16, HOUSING, Inv. No. 291-54-10, LOS ALAMOS, N. M. U. S. Govt., Chief Procurement Sect., Field Office, Los Alamos, N. M. Bids Apr. 6. CD 4/20, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
May 19, 20 California

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **MacDonald & Kruse,** 7450 Wheatland Ave., Sun Valley, Calif., CA, $3,085,381 river imprvs. Reseda Blvd. to Sepulveda Flood Control Basin, Los Angeles Co., CIVENG-04-353-54-32, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Apr. 8, awarded Apr. 23. CD 4/13, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hahn-St. John,** 219 S. Hawthorne St., Hawthorne, Calif., CA, $1,030,000, 103 frame, stucco DWELLINGS in tract 2021, ANAHEIM, CALIF. Anaheim Gardens No. 2, 219 S. Hawthorne St., Hawthorne, Calif.

▲ **Hasley-Cherry,** 8754 Beverly Blvd., Los Angeles and **Rolland Russel,** 621 S. Hope St., Los Angeles, Calif., CA, $1,497,400, 212 frame, stucco DWELLINGS, Fair Valley, Calera, and Oakland Sts., COVINA, CALIF. Ben Lomond Homes, 8754 Beverly Blvd., Los Angeles, Calif.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 14 British Columbia

▲† **Newfoundland, St. Johns**—FACILITIES—B.A. 6/10—U. S. Eng., Atlantic Distr., 346 Broadway, New York 13, N. Y., facilities (FY 1954 program) at Pepperell Air Force Base, incl. two 2-story, approx. 18,000 sq. ft. airmens dormitory; 2 story U-shaped, 31,510 sq. ft. wing headquarters bldg.; 1 story, 10,630 sq. ft. cold storage addn.; underground primary and secondary electrical distr., approx. 3,800 lin. ft. direct burial feeders, 450 lin. ft. feeders in duct and 3 transformer sub-stations; approx. 5,000 lin. ft. water distr. with necessary valves and hydrants; approx. 5,000 lin. ft. sewerage sys. and sewage pumping station; roads and parking areas, approx. 8,000 lin. ft. bit. macad. roads and 8,000 sq. yds. bit. macad. parking areas; application of pressure applied cement coating to exterior surf. of 3 existing concrete-block bldgs.; replacement of built-up roofing on two existing structures, approx. 125 square; constr. 1 story approx. 16,460 sq. ft. L-shaped base headquarters bldg.; 1 story, approx. 1,727 sq. ft. U-shaped group headquarters bldg.; 500,000 gal. rein.-con. above ground reservoir, Inv. ENG-30-347-54-10. Plans deposit $30.

ALASKA

BIDS ASKED—BUILDINGS

▲ **Alaska, Anchorage**—SCHOOL—B.A. 5/26—Dpt. Interior, Alaska Public Works, 123 3 St., Juneau. Airport Heights Elementary School, Proj. 50-A-140, $1,800,000. Plans deposit $25. Manley & Mayer, Loussac-Sogn Bldg., archts. CD 12/11.

PUERTO RICO

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Molla Galib & Co.,** P. O. Box 2423, San Juan, P. R., LB, $1,403,540, Base Bid;
Montgomery Constr. Co., Darlington Bldg., San Juan, P. R., LB, $1,479,228, Alternate 1, national guard facilities, ENG-08-123-54-48, SAN JUAN, PUERTO RICO. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Apr. 23. CD 3/10.

LATIN AMERICA

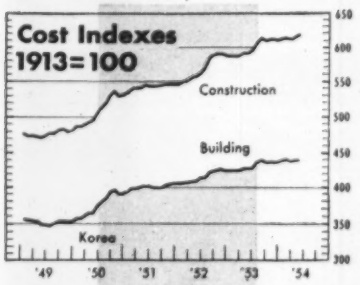
BUILDINGS

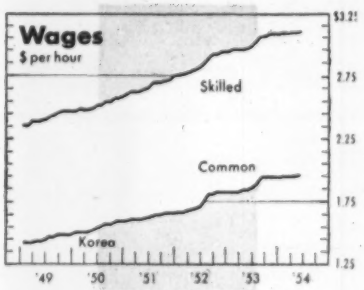
LOW BIDS AND CONTRACTS

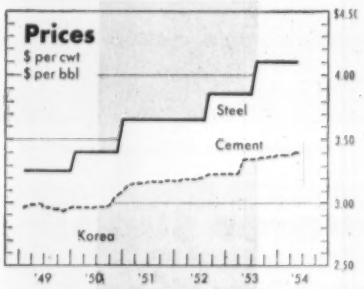
▲ **Kuljian Corp.,** 1200 N. Broad St., Phila. 21, Pa., U. S. A. CA. Approx. $15,000,000. Design and construct first two units GENERATING PLANT, west of LaGuaira, CARACAS, VENEZUELA. C. A. La Electricadad de Caracas, Venezuela.

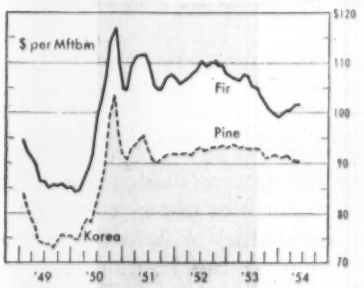
(Proposal Advertisements see pp. 106 to 109)

MAY CONSTRUCTION SCOREBOARD









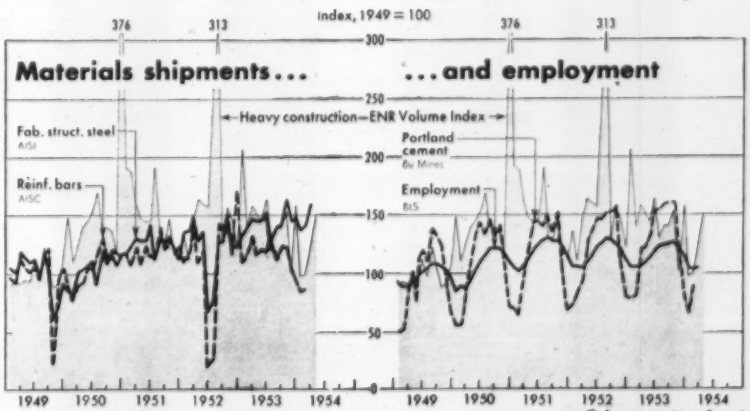
ENR INDEXES (1913 = 100), 20-cities' average	1954 May	% Change from last Month	% Change from last Year
Construction Cost	618.69	+0.5	+4.9
Building Cost	438.69	+0.2	+2.9
WAGE RATES, 20-cities' average			
Common	$1.964	+0.9	+7.5
Skilled (aver. 3 trades)	3.112	+0.4	+5.3
Bricklayers	3.384	+0.4	+3.1
Structural Ironworkers	3.079	+0.2	+6.5
Carpenters	2.874	+0.6	+6.8
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.399	+0.1	+1.8
Structural Steel, (3-mill aver.), per cwt	4.100	0.0	+6.5
Sand, per ton	2.239	0.0	+2.9
Lumber, 2x4 Fir, per M. ft. bm	101.764	+0.1	—4.9
Lumber, 2x4 Pine, per M. ft. bm	90.150	—0.1	—2.9
Common brick, per M	33.136	0.0	+2.8
Ready-mixed concrete, per c. y	12.034	+0.4	+2.7
Structural Clay Tile, 3x12x12 per M	160.468	0.0	+1.2

CONTRACTS AWARDED (Millions)	1954 April	4-Mos. (17-Weeks)*	% Change from '53 April	4-Mos. (18-Weeks)*
Total U. S. (ENR reported)	$1,439.4	$3,906.0	— 1.4	—24.9
Private	872.5	2,209.3	+16.4	—28.6
Public	566.9	1,696.7	—20.2	—19.4
Federal	102.0	308.6	—25.4	—39.9
ENR Volume Index, '13 = 100	517	407	— 1.3	—24.5
NEW CAPITAL (Millions)				
Total	1,141.8	2,756.1	+12.4	+ 0.9
State & Municipal Bond Sales	798.6	1,678.1	+104.6	+23.2
Corporate Security Sales	324.2	1,034.9	—46.8	—21.7
Federal (non-federal work)	19.0	43.1	+16.3	— 5.9
Federal (federal work)	.....	.....	.....	.....

* Computed on weekly average

MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1954 Feb. (F) Mar. (M)	2-Mos. (2) 3-Mos. (3)	% Change from '53 Mo.	Yr.-Cum.
Cement, bbls, Bu. of Mines	15.202(F)	26.345(2)	+7.3	—4.8
Fabr. Struc. Steel, tons AISC	.285(M)	.784(3)	+7.1	+3.4
Lumber, mil. ft. bm., NLMA	2.808(F)	5.412(2)	—4.9	—9.8
Lumber Prod., mil. ft. bm., NLMA	2.901(F)	5.650(2)	—1.5	—4.6
Contract Const. Employ., BLS	2.282(M)	2.259(3)†	—0.8	—1.6

† Average



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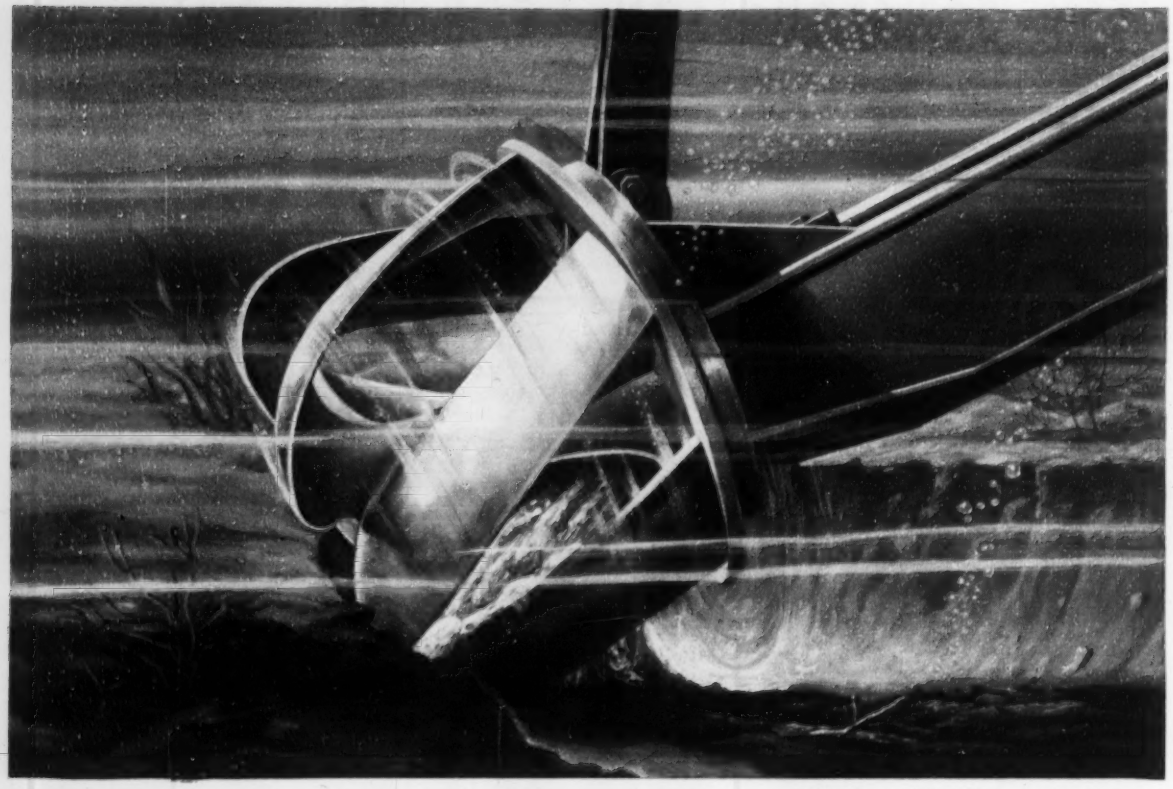


Cutter head of Ellicott Dragon-8 in action.

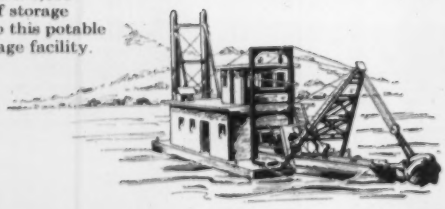
How to double your water supply without any new construction!

WHEREVER diminishing water supplies are becoming a problem, silting and sedimentation can be at fault. In hundreds of such cases, the answer to low storage capacity has been *portable* Ellicott Dragon* hydraulic pipe line dredges. For example, the reservoir described below—and other water storage areas, municipal and private, the world over—have added capacity by dredging, without draining or loss of stored water.

Available in capacities of 50 to 1,000 cu. yds. per hr., the versatile Dragon's compact, modern design replaces costly, inefficient methods of excavation with the cheapest known method of moving water-bound solids—hydraulic dredging.

The portable Dragon dredge is easily knocked down, can be transported anywhere by trailer truck or flatcar as well as aboard ship. It can be quickly reassembled on either land or water. This development of greater mobility and efficiency in land-locked dredging is one more example of Ellicott ability to solve any dredging problem.

DOUBLED CAPACITY by complete de-silting of storage reservoir. Ellicott hydraulic dredge added 4,000 acre feet of storage capacity to this potable water storage facility.



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ELLICOTT DREDGES

*T. M. Reg. U. S. Pat. Off.—Marque Déposée

April is the best month yet; close to last year's record

April was a great month for the construction business. Volume of contract awards reported to ENR and the CONSTRUCTION DAILY continued the upturn which started in March.

Total heavy construction contracts were $1,439 million, only 1% below the record for April set in 1953. Both this year and last April was a five-week month. On the basis of average awards per week, this April was nearly 24% above March, a four-week month.

There were gains in all three major categories. The total volume of private work was up 32% over March, with $873 million in awards. State and municipal volume was up 6% over March. Federal awards climbed 44% from the very low level of March, though the total was still 26% below April 1953. So the total volume of public work was below the volume for the same 1953 month.

• **Private work**—Private construction led the April rise. Mass housing contracts amounted to an average of $100.7 million per week, the second highest month on record and 40% higher than a year ago.

Commercial construction kept right on rolling, up 12% from a year ago and setting a new high for this month.

Another encouraging sign: Industrial building began to show some strength for the first time this year. It was up 60% over March and also 22% above April 1953. However, because of a poor start this year, industrial contracts for 1954 to date are 55% below the same 1953 period.

• **Public work**—In spite of its gain over March, the total of state and municipal awards is 19% below April of last year. For public work as a whole, the big gain was in highways, where awards totaled $218 million, compared with $91 million in March. However, there was a sharp decline in non-residential public building awards —where schools are a major factor. The only types of public work to show higher volume in April than in March were public housing and unclassified.

• **First four months**—For the first four months of this year, total awards are down 25% from last year. Every type of public work is down from last year. The categories which have been least affected are highways and non-residential public buildings—both down 5% —and sewerage, which is down 9%.

In the private sector, commercial building is the only type running ahead for the period. Among other categories, mass housing shows up the best. It's down only 9%.

• **Regions**—So far this year, New England (down 1%) and the Middle Atlantic (down 3%) have come off best. The other regions show much sharper declines. However, the 30% decline shown for the Midwest is accounted for entirely by a $200-million residential contract and a $280-million power plant award, let in January 1953.

Wage boosts raise indexes to new record highs

Higher construction wage rates in five cities pushed ENR's cost indexes up a notch this month to new highs.

The 20-cities Construction Cost Index for May is 618.69, based on 1913 = 100. This is up 0.5% over April to a new high, and 4.9% above a year ago. The Building Cost Index for May is up 0.2% to 438.69, also based on 1913 = 100. During the last 12 months, the rise is 2.9%.

The wage increases fall between five cents and ten cents an hour. Only two of nine unions winning raises got over ten cents.

There were changes in the price of lumber in a few cities, but these tended to cancel each other out.

(*B & F continued on page 102*)

ENGINEERING CONSTRUCTION CONTRACTS—APRIL 1954

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Five Weeks—Thousands of Dollars (000 omitted)

	April, 1954							U. S. Cumulative Four Months		% Change	Canada
	New England	Middle Atlantic	South	Mid West	West of Mississippi	Far West	Total U. S.	1954 (17 weeks)	1953 (18 weeks)	'53 to '54 Avg. Wk.	April 1954
Public Works											
Waterworks	1,832	3,233	2,022	4,620	7,223	1,329	20,259	64,769	88,540	—23	745
Sewerage	1,653	4,663	4,240	9,893	10,808	4,515	35,772	107,471	125,305	— 9	526
Bridges	2,284	2,255	4,152	8,302	10,479	2,548	30,020	129,578	214,294*	—36	5,979
Earthwork and drainage	1,087	1,882	1,459	1,480	4,280	12,982	23,170	90,006	128,360	—26	702
Streets and roads	31,090	51,799	29,191	40,992	46,976	18,401	218,449	481,949	534,741	— 5	2,448
Public buildings, residential	1,282	973	2,815	8,309	2,925	5,187	21,491	61,451	239,360	—73	1,491
Other public buildings	19,956	24,402	19,733	25,518	24,545	21,847	136,001	521,412	578,160	— 5	8,936
Unclassified	22,282	10,686	10,199	5,685	24,588	8,336	81,776	240,051	320,876	—21	2,973
Total public	81,466	99,893	73,811	104,799	131,824	75,145	566,938	1,696,687	2,229,636*	—19	23,800
Federal government (included in above classifications)	22,658	13,533	13,079	7,028	23,206	22,528	102,032	308,643	544,332	—40	5,540
Private											
Bridges								110	8,552	—98	
Industrial buildings	33,011	43,919	21,882	45,326	45,792	14,168	203,798	520,266	1,214,088	—55	21,488
Mass housing	4,350	217,019	60,782	135,933	66,646	18,937	503,667	1,228,237	1,424,291	— 9	43,358
Commercial buildings	7,295	38,214	8,871	38,450	33,917	8,173	134,920	382,694	344,524	+18	19,874
Unclassified		60	2,969	1,099	25,054	936	30,118	78,005	285,672	—71	1,480
Total private	44,656	299,212	94,204	220,808	171,409	42,214	872,503	2,209,312	3,274,127	—29	86,200
Total Engineering Construction:											
April, 1954 — 5 weeks	126,122	399,105	168,015	325,607	303,233	117,359	1,439,441				110,000
March, 1954 — 4 weeks	30,087	270,443	127,385	194,757	199,946	111,019	933,637				85,549
April, 1953 — 5 weeks	94,143	388,924	275,029	211,049	328,084	163,015	1,460,244				143,478
Four Months — 1954	236,980	1,077,343	559,625	863,452	792,063	376,516		3,905,999		—25	335,681
Four Months — 1953	252,840	1,172,885	938,267	1,305,930*	1,158,760	675,081			5,503,763*		349,063
% Change '53 to '54 (Avg. Wk.)	—1	—3	—37	—30	—28	—41					+2

* Revised

Sell-lease: It means more business for construction

To many construction men, the fast postwar spread of the "sell-lease" formula in financing real estate seems to have no connection with their business. Most of them are inclined to assume that sell-lease is used only in financing transfers of existing buildings. And yet this new financing device has great possibilities in helping to sell new construction (ENR Sept. 24, 1953, p. 72).

Recently an outstanding real estate trader, Louis Glickman, explained some of the finer points of sell-lease in Dun & Bradstreet's monthly magazine, Dun's Review and Modern Industry.

Basically, the sell-lease plan works like this: A company or individual businessman owns a building, sells it to an investor or group of investors, and then leases it back. The investor gets a fixed return (and sometimes additional income in the form of a percentage of gross income from the building). By shifting from owner to tenant, the leasing company has converted fixed assets into working capital, and its rental payments are tax-deductible.

It could have acquired working capital by mortgaging the building, thus converting most of the fixed assets into cash and making its interest payments tax-deductible. But in that case the mortgage would have shown up on the liability side of the balance sheet. A lease does not appear there, thus by-passing any restrictions that may have been imposed on the company through bond indentures or loan agreements.

• **Depreciation useful** – Glickman points out that the investor who owns the building not only gets a fixed, long-term income, but, also, for tax purposes he is able to take advantage of the building's depreciation. Often this depreciation may more than offset the taxable income he gets in rent. Sometimes there is a mortgage on the property, which the investor-owner pays off out of the rental. Of course, interest on this mortgage is tax-deductible.

Glickman predicts that the sell-lease method will be used more and more by companies which would like to have buildings erected for their own particular requirements. By using it, they avoid financing worries and get tax advantages, both in one package. A company with high-grade credit can arrange with a construction firm to handle all the details—site purchase, design, and construction. The builder would become the landlord, or dispose of the property to permanent investors.

• **Worth the trouble**—Most construction firms, of course, are not in a position to tie up their capital indefinitely, but if interested in getting the business and securing a profit on construction they might be willing to take the responsibility for finding permanent investors. Alternately, the construction firm could mortgage the property in order to release most of its capital. In a deal made with Safeway Stores, Inc., last fall to build 100 supermarkets, Webb & Knapp, Inc., expects to find permanent investors to own some stores, and plans to own some of them itself.

In explaining the finer points of sell-lease, Glickman gave an illuminating example from his own experience. In 1951, he bought a 33-story office building on Fifth Ave. in New York City. It had a gross annual rental income of $1.3 million. In this case, he decided that the best thing to do was to sell the land under the building to a life insurance company for $3,750,000, then lease it back.

He could have gotten the same amount of cash by mortgaging the land and would have liquidated the mortgage in 26½ years by paying $244,000 a year in interest and amortization. Instead, he decided to pay $244,000 annually in rent for 26½ years, after which the rent would go down to $100,000 a year.

• **Lower taxes**—If he had sold a mortgage, Glickman figures that annual amortization payments would be $139,000. He would have paid this out of his gross annual revenue from the building tenants, and it would have been subject to income tax. Under the sell-lease arrangement, Glickman finds that his net profit from the building after all expenses is $400,000 a year. If he had been paying $139,000 annual amortization, his total taxable income from the building would have been $539,000, before deducting depreciation on the building.

Now under the sell-lease arrangement, he is able to deduct the entire land rental of $244,000, in addition to building depreciation. In this way he is able to reduce his taxable income before depreciation from $539,000 to $400,000. Says he: "The difference in taxes between paying on $539,000 or paying on $400,000 before depreciation . . . is very considerable." Over 26½ years, it would amount to a very large sum.

Nuclear power

It makes economic sense to start right now, says Smyth of AEC

"From the purely economic point of view, it is sensible to push the development of nuclear power in this country." These were the words spoken by a member of the Atomic Energy Commission, Henry D. Smyth, to a conference of business economists in Chicago late last month.

Smyth estimates that construction of modern plants should keep the cost of power generated from ordinary fuels from going up very much in the next 20 years. He estimates that 90% of 1,400 billion kwh from atomic power expected to be generated in 1975 should cost somewhere between 3 and 8 mills per kwh. On the other hand, estimates by AEC and by private groups indicate that cost ranges of from 5 to 10 mills per kwh are reasonable goals for nuclear power.

Furthermore, argues Smyth, small "package" atomic reactors might be developed for use in isolated areas of the U.S. where fuel is so expensive that nuclear power may be economic as soon as practicable units can be built. Furthermore, as an aid to our foreign policy it could be developed in other parts of the world where power is more expensive than in the U.S.

Smyth then goes on to state two possible situations on nuclear power costs, assuming that a development program including construction of several large nuclear power plants by the mid-1960s leads to building of a growing number of such plants generating power at competitive costs.

One possible situation might be that nuclear power costs will be 7 mills per kwh by 1963, falling to 4 mills by 1975. His estimate is that nuclear reactors might provide 10% of the total U. S. kwh by 1975.

Another possibility could be that nuclear power would cost 7 mills per kwh by 1965, falling to 5 mills by 1975. In this case, Smyth thinks nuclear power might be providing about 2% of total power generated.

Faster depreciation safe as Senate takes up tax bill

The Administration had a tough fight in the House to save its sweeping tax revision bill from the Democrats. Now, after three weeks of hearings, it's clear that another fight lies ahead in the Senate—this one with tax lawyers and accountants. However, the part of the bill that means most to construction men apparently is going to go through unscathed. More liberal treatment of tax depreciation allowances seems assured, no matter what the Senate committee decides. This provision escapes the kind of fine-print criticism which piled up on other ideas.

Other parts of the bill under heavy fire include: (1) A provision that corporations earning more than $50,000 pay part of their income tax on a current-year basis, as individuals do, and (2) a provision forbidding companies whose stock is closely held to enjoy tax-free stock mergers.

Business briefs . . .

• **New Jersey water supply** would be nearly doubled by a $150-million program for dams and reservoirs approved last week by state officials. A bond issue will be submitted to the voters in November. Estimates are that the program would add 400 mgd to the state's present safe yield of 415 mgd. New Jersey's increasing industrialization is putting pressure on its supply.

• **$500 million for New York port**—Howard S. Cullman, chairman of the Port of New York Authority, estimates that half a billion dollars worth of self-supporting vehicular, airport, and marine terminal facilities may be built in the port area during the next 10 years. PNYA and the Triborough Bridge & Tunnel Authority are now considering a lower deck for the George Washington Bridge and a Brooklyn-Staten Island Narrows bridge.

• **Connecticut** will borrow $100 million in revenue bonds next week as the first instalment of financing for its $400-million thruway.

• **Libby Dam bids**—The Corps of Engineers has announced it will receive bids at Seattle until about May 17 for "additional foundation exploration" in connection with the $263-million Libby Dam project on the Kootenai River in northwestern Montana. The exploration will be carried on at a new site about 15 mi above the town of Libby. The new site is reported to have eliminated most opposition.

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Activity This Week

As reported to ENR
(In millions of dollars)

Amount of contracts let

	This Week	Cumulative 18 wks 1954	1953	% chge
Federal	$27.5	$336.2	$544.3	−38
State and municipal	104.3	1,492.3	1,685.3	−11
Total pub.	131.8	1,828.5	2,229.6	−18
Total priv.	362.1	2,571.4	3,274.2	−21
U. S. total	$493.9	$4,399.9	$5,503.8	−20
Contracts by type of work				
Waterworks	$4.7	$69.6	$88.5	−21
Sewerage	24.3	131.5	125.2	+5
Bridges	3.4	132.9	219.7	−40
Highways	40.6	522.6	534.7	−2
Earthwork, waterways	5.8	95.8	128.6	−26
Buildings:				
Public, excl. hsg.	28.0	549.8	578.4	−5
Housg., pub.	2.1	63.9	239.3	−73
Housg., priv.	239.8	1,467.9	1,424.2	+3
Commercial	43.6	426.1	344.6	+24
Industrial	53.1	573.3	1,214.2	−53
Unclassified	48.5	366.5	606.4	−40
Total	$493.9	$4,399.9	$5,503.2	−20

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)	Week of Apr. 29 1954	Cumulative 17 Wks 1954	% chge 1953-54
Corporate securities	$77.2	$1,034.9	−25
State and municipal:			
Excluding housing	106.6	1,635.4	+40
Housing	...	42.6	−77
Federal loans	1.3	43.1	−9
Federal aid	...	...	...
Total non-federal	$185.0	$2,756.1	−1
Federal approps.:			
In U. S.	...	...	...
Outside U. S.	...	...	...
Total new capital	$185.0	$2,756.1	−1

ENR indexes		Base years = 100 1913	1926	1949
Constr. cost	May '54	618.69	297.40	129.70
	Apr '54	615.36	295.80	129.00
Bldg. cost	May '54	438.69	237.14	124.70
	Apr '54	437.94	236.74	124.49
Volume	Apr '54	517	210	149
	Mar '54	426	173	123

OFFICIAL PROPOSALS

Bids: May 25, 1954

Contract 430

ELECTRICAL CONTROL EQUIPMENT, ETC.

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M. Eastern Standard Time, on Tuesday, May 25, 1954, for Contract 430, for furnishing, testing and delivering electrical control equipment, complete, with all necessary appurtenances, for the operation of the motor-operated valves of the Neversink intake and outlet chambers, the East Delaware outlet chamber and the Downsville release water chamber, of the Delaware system, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of two thousand dollars ($2,000.00) for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: May 27, 1954

New Jersey Turnpike Authority

CONTRACT NO. GR-10

Sealed proposals are invited for Contract No. GR-10 which involves the construction of drainage improvements and paving at New Jersey Turnpike bridges #95 (Yardville-Crosswicks Road), #98 (Yardville-Allentown Road), #99 (Robbinsville-Allentown Road), #107 (Old York Road), #109 (Hightstown-Etra Road), #113 (Monmouth Road-Hightstown to New Jersey State State Highway Route 33) and #113-1 (Wykoff Road-Hightstown to Wykoff Mills) all in Mercer County along the New Jersey Turnpike.

Proposals will be received at the office of the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Daylight Saving Time, on the morning of May 27, 1954, at which time and place said proposals will be publicly opened and read.

The receipt and opening of proposals are subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal a revised financial statement and a statement of plant and equipment.

Contract documents may be examined during office hours after April 29, 1954, at the office of the Authority and at the office of Mr. A. C. Jones, 223 High Street, Mount Holly, New Jersey. Contract documents will be furnished upon deposit of Fifteen Dollars ($15.00) for each set, upon application to the Authority. The deposit will be refunded if the contract documents are returned in good condition to the Authority within fifteen (15) days after the receipt of proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

April 29, 1954

OFFICIAL PROPOSALS

Bids: May 21, 1954

Sewage Treatment Plant & Accessories

NOTICE TO CONTRACTORS
CHARLESTON SEWER IMPROVEMENTS, PROJECT WVA 46-P-4
UNIT ONE: SEWAGE TREATMENT PLANT & ACCESSORIES
CHARLESTON, W. VA.

The Sanitary Board of The City of Charleston, Charleston, West Virginia, will receive sealed bids for "Unit One: Sewage Treatment plant and Accessories" until 2 P.M. Eastern Standard Time on the 21st day of May, 1954, at the office of the Sanitary Board, Room 15, City Building, at which time and place all bids will be publicly opened and read aloud.

The successful bidder will be required to furnish a satisfactory performance bond in the amount of 100 percent of contract.

Liquidated damages for delay will be One Hundred Dollars ($100.00) per day for each calendar day beyond the date specified in the contract.

The contract documents, including plans and specifications are on file at the office of the Sanitary Board, City Building, Charleston, West Virginia, and at the office of Settle Engineers, Inc., 2nd Floor Peoples Building, Charleston, West Virginia, where they may be examined free of charge.

Copies of the documents may be obtained by depositing Forty Dollars ($40.00) with Settle Engineers, Inc., 2nd Floor Peoples Building, Charleston, West Virginia, for each set of documents so obtained. The amount of the deposit for one (1) set of documents will be refunded to each actual bidder who returns the plans and documents in good condition within five (5) days after the opening of the bids.

The Sanitary Board of The City of Charleston reserves the right to reject any or all bids and to waive any informalities in bidding.

A certified check or cashier's check, payable to The Sanitary Board of The City of Charleston, West Virginia, or a satisfactory bid bond executed by the bidder and a surety company authorized to do business in West Virginia, in an amount of dollars at least equal to five per cent (5%) of the bid or an equal amount of U. S. Government Bonds, shall be submitted with each bid.

No bid may be withdrawn after the scheduled closing time for receipt of bids, for at least thirty (30) days.

THE SANITARY BOARD OF THE CITY OF CHARLESTON
By: E. Duane Hill, Secretary

Date: April 22, 1954

Bids: May 21, 1954

City of Charleston, West Virginia

The City of Charleston, West Virginia will receive bids May 21st on the following units of a 6 M.G.D. Primary Sewage Treatment Plant.

Grit Removal Unit
2 Primary Settling Tanks
2 Digestion Tanks
Digestion Control Building
Administration Building
Sludge Pumping Station
Chlorination Building
Yard Piping, River Outlets, Etc.
Covered Sludge Beds.

U. S. Government

DEPARTMENT OF THE INTERIOR. Bureau of Reclamation. Sealed bids (Specifications No. DC-4163) will be received at Superior, Nebraska, until June 8, 1954, for furnishing labor and materials for earthwork and structures, Courtland Canal Station 1503 to Station 1581, laterals and drains; North Canal and laterals; Ridge Canal and laterals, Bostwick Division, Nebraska-Kansas, Missouri River Basin Project. Location in the vicinity of Webber, Kansas, in Jewell and Republic Counties. Principal items are: excavation 455,000 cu. yds.; concrete 1,900 cu. yds.; furnishing and laying 18-inch- to 48-inch-diameter concrete pipe, 9,800 lin. ft.; and other work. The work is divided into 4 schedules. Completion time 480 days. For particulars, address Bureau of Reclamation, Superior, Nebraska; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

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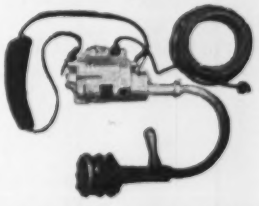

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DIVISION OF THE SPERRY CORPORATION
1126 East Aurora Street, Waterbury 20, Conn.

OFFICIAL PROPOSALS

Bids: May 20, 1954

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 20th. day of May 1954, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Cost of Work Estimated
DISTRICT No. 4, E. G. H. YOUNGMANN, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Ontario	FARC54-64	Geneva-Lyons, Pt. 2, S.H. 5252 Project No. F1013(2)	3.94	9" Cem. Conc. Pavt. 24' Wide	$41,000 Plans $15	$734,000
DISTRICT No. 5, C. R. WATERS, District Engineer, 65 Court Street, Buffalo, N. Y.						
Erie	NT54-1	New York State Thruway	(Acc.= 8.19)	9" Two Crse. Cem. Conc. Pavt. 2 at 25' Wide = 9.88 Mi. Asph. Conc. Opt.= 3.38 Mi. Misc. Work = 0.06 Mi. 7 Hy. Seps. Comp. I-Beams 381.8', 228', 220', 211.2', 199.8', 213.7' & 274.6'	$275,000 Plans $100	4,948,000
	ST54-1	Niagara Section-Sub. N8	5.13			
	GISP54-2	(South Grand Island Bridge to North Grand Island Bridge) South Bridge Interchange; Access Drives; 7 Misc. Marginal Roads and Cross Roads; West River Parkway				
DISTRICT No. 8, J. S. BIXBY, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Westchester	FA SWC54-2	New York State Thruway	(Acc.= 9.54)	9" Cem. Conc. Pavt. 2 at 37' Var. Wide = 3.00 Mi.	$990,000	17,921,000
	FA ST 54-28	Southern Westchester Conn. Sub. 11 (New York City Line-Tuckahoe Road, Pt. 1); 11 Ramps; 11 Misc. Marginal, Service & Access Roads Proj. No. UI-I-1100(1) Cont. 2	(Thy. −2.94)	9" Unreinf. Cem. Conc. Pavt. Var. Wide = 8.88 Mi. Asph. Conc. Opt. = 0.60 Mi. 7 Hy. Seps. Comp. I-Beams 80.6', 110.6', 341.8' 110.6', 109', 193.3' and 307.8' 1 Hy. Sep. Comp Girder 93.6'	Plans $100	
DISTRICT No. 10, M. E. GOUD, Dist. Engr., Montauk Hwy. at Little EastNeck Rd., Babylon, L. I., N. Y.						
Bronx	FA CBE54-1	Cross Bronx Expressway Contract 9B and 9X Project No. UI 1084(19)	2.32	9" Col. Cem. Conc. Pavt. 2 at 36' Wide = 0.22 Mi. Grad., Drain., Pav., Lighting, Roadside Develop., Playgrounds; Signs & Misc. Work = 2.10 Mi. 1 Hy. Sep. Plate Girder 312.6' 2 Hy. Seps., Misc. Work	$100,000 Plans $50	1,714,000
Bronx	FA MDE54-3	Major Deegan Expressway Extension Cont. 6 Project No. UI-1082(18)	0.95	9" Cem. Conc. Pavt. 2 at 36' Wide = 0.91 Mi. Misc. Work = 0.04 Mi.	60,000 Plans $25	1,084,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Deparmtent of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: June 1, 1954

Construction of Administration Building

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL—THIRD TUBE
NEW JERSEY
ADMINISTRATION BUILDING
CONTRACT LT-160.011

Sealed proposals for the construction of a new Administration Building for the Lincoln Tunnel adjacent to the Lincoln Tunnel Plaza in Weehawken, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, June 1, 1954, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Contract Engineer of the Authority, Room 1112. Documents will be furnished upon deposit of $100.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $100.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Contract Engineer, who will furnish the documents.

Those who have submitted a bid on the contract will receive a a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of the proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, May 6, 1954

Bids: June 8, 1954

Construction of Ventilation Building

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL—THIRD TUBE
NEW YORK VENTILATION BUILDING
CONTRACT LT-160.025

Sealed proposals for the construction of the New York Ventilation Building for the Third Tube of the Lincoln Tunnel will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, June 8, 1954, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Contract Engineer of the Authority, Room 1112. Documents will be furnished upon deposit of $100.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $100.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipts shall be delivered to the Contract Engineer, who will furnish the documents.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORTY
Howard, S. Cullman, Chairman

New York, May 6, 1954

Bids: May 27, 1954

Philadelphia, Penna.
Procurement Department
Water Department

Sealed Proposals will be received in Room 313 City Hall Annex, until 1:30 P.M., D.S.T., Thursday, May 27, 1954, and opened at that time in Room 313 City Hall Annex, Philadelphia, Pennsylvania, for BID NO. 2174-CONTRACT NO. M-111.

FRANKFORD CREEK FLOOD CONTROL
PROJECT FROM PENNSYLVANIA R.R.
TO FRANKFORD STREET BRANCH
DESCRIPTION OF WORK

The work includes the construction of an unpaved channel approximately 2700 feet long and varying in base width from 82 feet to 120 feet. Channel sides will be formed by steel sheet piling for an equivalent channel length of approximately 1000 feet, with the remainder of the channel side slopes formed by excavation or by rolled embankment. A two-span through plate girder railroad bridge will be constructed, replacing the existing Frankford Street Branch Bridge crossing.

Proposal forms and specifications may be obtained in Room 1131 City Hall Annex. Blueprints of plans may be purchased at bidder's expense, directly from the Keystone Blue Paper Company, 51 North 13th Street, Philadelphia, Pennsylvania.

No bids will be received unless bidder is qualified by the Procurement Commissioner. The questionnaire form with all questions fully answered must be filed with the Water Commissioner, 1106 City Hall Annex, Philadelphia 7, Pennsylvania, at least one (1) week prior to the date of opening bids.

Each proposal must be accompanied by security in form and amount as set forth in the proposal form.

OFFICIAL PROPOSALS

Bids: May 18, 1954

Route 23, Section 4-C

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON
READVERTISEMENT

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Route 23, Section 4-C, Channelization at Germantown Road and Realignment of Driveways, in the Township of West Milford, Passaic County. Length of project 0.274 miles. The principal items of work are:

Estimated:
- 4,873 cu. yds. Roadway Excavation—Earth
- 631 cu. yds. Roadway Excavation—Rock
- 1,019 sq. yds. Macadam Base Course, 5" thick
- 1,235 sq. yds. Pen. Mac. Surface, Hot Application, 3" thick
- 1,004 lin. ft. 9"x20" White Concrete Vertical Curb

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, May 18, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: May 20, 1954

Paving Repairs at Marine Terminal Building La Guardia Airport

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M 240
PROPOSAL NO. 429

Sealed proposals for furnishing all labor, material and equipment necessary for repairing pavement at the Marine Terminal Building at La Guardia Airport, Jackson Heights, N. Y., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111 8th Ave., New York 11, until 11:00 A.M. (E.D.S.T.) Thursday, May 20, 1954, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Bids: May 18, 1954

Route 6 (1927) Route U. S. 46 (1953), Sec. 1-M

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON
READVERTISEMENT

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

Route 6 (1927) Route U. S. 46 (1953), Section 1-M, Main Street Relocation and Resurfacing Hackensack River Bridge, in the Village of Ridgefield Park & Borough of Little Ferry, Bergen County. 0.355 miles. Federal Project No. UI-117(5). The principal items of work are:

Estimated: Roadway Items
- 12,497 cu. yds. Roadway Excavation—Earth
- 7,461 sq. yds. Pavement Surface Removal
- 8,402 sq. yds. Pavement Type MA-BC-3, 3" thick
- 5,588 sq. yds. Conc. Pavement Surface, Rein. 10" thick
- 1,588 lin. ft. Rein. Conc. Culvert Pipe, various sizes
- 555 lin. ft. 29"x18" C.M. Pipe Arch, Bituminous Coated
- 3,830 lin. ft. 9"x20" White Concrete Vertical Curb

Bridge Items
- 1,133 cu. ft. Concrete Headers

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, May 18, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the revised statutes of New Jersey and supplements, and by P. L. 413, 82nd Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 309 State Street, Hackensack, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: June 15, 1954

River Intake & Pumping Station; Water Treatment Plant; Water Supply Line

1. SEALED BIDS for furnishing all materials and equipment and doing all work required for the construction of the following at WINCHESTER, VIRGINIA, will be received by the Common Council in Council Chambers, City Hall, Winchester, Virginia, until 2:00 P.M. on June 15, 1954, and there publicly opened and read immediately thereafter:
   - CONTRACT I. River Intake Works & Raw Water Pumping Station
   - CONTRACT II. Water Treatment Plant
   - CONTRACT III-A. 24-Inch Supply Line (Section A)
   - CONTRACT III-B. 24-Inch Supply Line (Section B)
2. The principal items of work will include the following:
   - CONTRACT I: Approximately 5,000 cu. yds. of excavation; 800 cu. yds. concrete (including 160 foot long sill across the Shenandoah River); 570 feet of 36" intake line; 1200 feet of 24-inch force main; 25 tons of C.I. pipe and fittings; water screen, pumping equipment, valves, sluice gates, superstructure work, electrical work and miscellaneous equipment.
   - CONTRACT II: Approximately 14,500 cu. yds. of excavation; 2900 cu. yds. of concrete; 2650 feet of 24-inch force main; 140 tons of C.I. pipe and fittings; valves, sluice gates, superstructure work, electrical work, pumps and motors; filter media, equipment and accessories for six 20 x 24 feet rapid sand filters, and miscellaneous equipment.
   - CONTRACT III-A: Approximately 39,000 feet of 24-inch supply line, and miscellaneous valves, fittings and appurtenances.
   - CONTRACT III-B: Approximately 42,000 feet of 24-inch and 3,600 feet of 12-inch supply line, and miscellaneous valves, fittings and appurtenances.
3. Copies of Plans and Specifications, Information For Bidders, Bid Forms and other bidding and contract documents may be examined at the City Manager's Office, City Hall, Winchester; at Dodge Reports, 900 F St., N.W., Washington, D.C., and examined or obtained at the Office of ALEXANDER POTTER ASSOCIATES, CONSULTING ENGINEERS, 50 CHURCH STREET, NEW YORK 7, N.Y. upon the following Deposits:
   - CONTRACT I: Eighty Five Dollars ($85.00) Per Set
   - CONTRACT II: Fifty Dollars ($50.00) Per Set
   - CONTRACT III-A & CONTRACT III-B Forty Dollars ($40.00) Per Set for Both Contracts

   Full refund will be made to actual bidders for return of One (1) Set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, WITHIN THE SAME PERIOD, will be fifty (50%) percent of the deposit. No refund will be made for return of documents in poor condition or later than the two week period stipulated.
4. All bids must be on the form contained in the Contract and Specifications.
5. Contractors, whether resident or nonresident in Virginia will be required to show evidence of a certificate of registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.
6. All bids must be accompanied by a certified check or acceptable bidder's bond in an amount of not less than Five Per Cent (5%) of the amount of the bid, made payable to the City Treasurer, as bid security.
7. The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the Contract and upon payment of all persons supplying labor and furnishing materials on the construction of the work.
8. No bidder may withdraw his bid within Thirty (30) Days after actual date of opening thereof.
9. The Common Council of Winchester, reserves the right to reject any or all bids, and to waive any informality in the bid.

CITY OF WINCHESTER, VIRGINIA
By: S. LEE GRANT, CITY MANAGER
Dated: May 1, 1954.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4150) will be received at Loveland, Colorado, until May 27, 1954, for furnishing labor and materials for earthwork and structures, Boulder Creek Supply Canal, Station 664+38 to Station 862+86, Colorado-Big Thompson Project, Colorado. Location near Boulder, Colorado. Principal items are: 75,600 cu. yds. excavation; 640 cu. yds. concrete; 1,030 lin. ft. concrete pipe; 6,800 lbs. welded-steel pipe; 6,200 lbs. gates and metalwork; and other work. Completion time 260 days. For particulars, address Bureau of Reclamation, Box 449, Loveland, Colorado; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: May 24, 1954

Furnishing and Installing Sirens

GOV. OF DIST. OF COL., DEPT. OF HIGHWAYS, April 26, 1954. SEALED PROPOSALS will be recd. in Rm. 404, 499 Pa. Ave., N.W., Wash. 1, D. C., until 2 PM, DST, May 24, 1954, and then publicly opened and read for furnish, and install, approx. thirteen (13) Gasoline-Engine-Driven Electrical and Radio Actuated and Controlled Air Raid Sirens on the Roofs of Existing Bldgs. at var. locations in D.C. Proposal forms, plans and specns. obtainable, without charge, from Supervisor Contr. & Bond Section, Procurement Office, D.C., Rm. 406, 499 Pa. Ave., N.W. (Tel. NA 8-6000, Ext. 2378).

Bids: May 13, 1954

Construction of Substation

NAME AND LOCATION OF PROJECT
Missouri River Basin Project
Transmission Division, Wyoming
DEPARTMENT OR AGENCY
Department of the Interior
Bureau of Reclamation
BY (*Issuing office*)
North Platte River District
Reclamation Center
P. O. Box 280
Casper, Wyoming

Sealed bids in single for furnishing all labor, equipment, and materials and performing all work for the project described herein will be received until 10:30 a.m., Mountain Standard Time, May 13, 1954, in the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming and then publicly opened.

Information regarding bidding material, bid guarantee, and bonds

Bid Bond—Bid guarantee will be required with each bid in the amount of not less than 10 percent of the amount of the bid.

Performance and Payment Bonds—The contractor shall furnish Performance and Payment Bonds in the amounts stated in the Specifications.

Standard Forms—Bids must be submitted upon the standard Government Bid form for construction (STANDARD FORM 21, revised USBR 9/53). The successful bidder will be required to execute the standard Government form of contract for construction (STANDARD FORM 23, revised March 1953).

Addenda—The right is reserved, as the interest of the Government may require to revise or amend the specifications prior to the date set for opening of bids. Such revisions or amendments will be announced by Supplemental Notice to prospective bidders. Supplemental Notices must be signed and submitted with the bid.

Description of work
CONSTRUCTION OF LUSK RURAL SUBSTATION
The work is situated near Lusk, Wyoming, in Niobrara County.

Features of the work include:

(a) Construction of the Lusk rural substation, including earthwork, concrete foundations; erection of structural steel and chain-link fence; installation of grounding system; and electrical installations of equipment, conduit, copper tubing buses and insulators, cables and insulated conductors, meters and panels, lighting fixtures, and wiring.

(b) The equipment and materials that will be furnished by the Government and those to be furnished by the contractor are described in the specifications.

Principal items of work and estimated quantities involved include:

200 cu. yds.	Grading
155 cu. yds.	Excavation
110 cu. yds.	Compacted backfill
2,150 sq. yds.	Sterilizing area
5 cu. yds.	Gravel fill
180 cu. yds.	Crushed-rock surfacing
45 cu. yds.	Concrete
3,000 pounds	Furnishing and placing reinforcement bars
65 barrels	Furnishing and handling cement
28,000 pounds	Erecting structural steel
550 lin. ft.	Erecting chain-link fence
Lump sum	Installing grounding system
Lump sum	Installing and connecting electrical equipment

Completion time—The time for completion from the date of receipt of notice to proceed is 135 calendar days.

Liquidated damages for delay are prescribed in the specifications.

It is anticipated that the specifications will be ready for mailing about April 15, 1954.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: R. J. Walter, Jr., Regional Director, Building 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper Wyoming. No charge will be made for copies of the specifications furnished for bidding purposes; for others the charge will be $1.00 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

Full-size contract prints of any specification drawings will be mailed to bidders upon request. Bidders will be charged $0.50 per print, which charge will include postage. The cost of air mail delivery, if desired, will be additional. Requests for prints should be directed to the District Manager.

Prospective bidders desiring to visit the site of the work should communicate with the District Manager.

(Sgd.) I. J. Matthews, District Manager 3

Bids: May 11, 1954

Contract Nos. 40, 40A, 40B, 40C, and 40D

WEST VIRGINIA TURNPIKE COMMISSION
ADVERTISEMENT FOR PROPOSALS

Sealed proposals will be received by the West Virginia Turnpike Commission for:

The work to be done under these Contracts consists of the furnishing, erection and painting of two types of right-of-way fence, namely, Chain-Link Fence and Farm-Field Fence, and all other work incidental thereto. This work is located between Princeton, Mile 0, and Charleston, Mile 88, Mercer, Raleigh, Fayette and Kanawha Counties, West Virginia, and is in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

The principal items of work include:

Contract	Approximate Quantities		
	4′ Farm Fence	4′ Chain-Link Fence	7′ Chain-Link Fence
40	354,000 Lin. Ft.	34,800 Lin. Ft.	8,000 Lin. Ft.
40A	124,500 Lin. Ft.		
40B	124,500 Lin. Ft.		
40C	102,000 Lin. Ft.		
40D	10,000 Lin. Ft.	34,800 Lin. Ft.	8,000 Lin. Ft.

The Subdivisions of Contract 40 are as follows:

40A Princeton (Mile 0) to Ghent (Mile 20)
40B Ghent (Mile 20) to Maynor (Mile 42)
40C Maynor (Mile 42) to Standard Tunnel (Mile 68)
40D Standard Tunnel (Mile 69) to Charleston (Mile 88)

Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 5, West Virginia until 1:00 P.M., Eastern Standard Time, and thereafter at the House of Delegates Chamber, State Capitol, Charleston, West Virginia until 2:00 P.M. Eastern Standard Time, on May 11, 1954, at which time and place said proposals will be publicly opened and read.

WEST VIRGINIA TURNPIKE COMMISSION
D. H. Morton
Chairman

OFFICIAL PROPOSALS

SEARCHLIGHT SECTION

This index is published as a convenience to the reader. Every care is taken to make it accurate but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

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OFFICIAL PROPOSALS

Bids: May 18, 1954

New Jersey Turnpike Authority

Contract No's. GR-2, GR-2A and GR-2B

NEW JERSEY TURNPIKE AUTHORITY

Sealed proposals are invited for contracts No's. GR-2, GR-2A and GR-2B which involve the removal of temporary truck parking areas; construction of new bituminous shoulders, pavement, and other incidental work at various Service Areas along the New Jersey Turnpike.

Contact No. GR-2A includes four (4) Service Areas, of which two (2) are in Salem County and one (1) each in Camden and Burlington Counties.

Contract No. GR-2B includes three (3) Service Areas, all of which are in Middlesex County.

Contract No. GR-2 includes all seven (7) of these Service Areas.

Principal items of work for Contracts No's. GR-2A and GR-2B include:

	Contract No. GR-2A	Contract No. GR-2B
Excavation	3,000 Cu. Yds.	2,500 Cu. Yds.
Pavement	250 Sq. Yds.	250 Sq. Yds.
Topsoiling and Seeding	12,000 Sq. Yds.	9,000 Sq. Yds.

The quantities of the principal items of work for Contract No. GR-2 equal the sum of the quantities listed for Contracts No's. GR-2A and GR-2B. If a bidder submits a proposal for Contarct No. GR-2, he must also submit proposals for Contracts No's. GR-2A and GR-2B in order that the Authority may equitably compare proposals.

Proposals will be received at the office of the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock Eastern Daylight Saving Time, on the morning of May 18, 1954 at which time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their proposal, a revised financial statement and a statement of plant and equipment.

Contract documents may be seen, and may be inpsected by prospective bidders during office hours, after April 29, 1954 at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon deposit of Fifteen Dollars ($15.00) for each set, upon application to the Authority.

The deposit will be refunded if the contract documents are returned in good condition to the Authority within fifteen (15) days after the receipt of proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

April 29, 1954

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4168) will be received at Coulee Dam, Washington, until June 3, 1954, for furnishing labor and materials for floor finishes and handrailings for Grand Coulee Pumping Plant, Powerplants, and Dam, Columbia Basin Project, Washington. Location: Grand Coulee Dam, Washington. Principal items are: 2340 sq. yds. bonded concrete finish on floors; 1930 lin. ft. bonded concrete wall bases; 1656 lin. ft. bonded concrete finish on curbs; 3540 sq. ft. terrazzo finish on floors; 695 lin. ft. terrazzo bases; 1,400 lbs., installing aluminum handrailings; 9,000 lbs., furnishing and installing aluminum handrailings; 34,000 lbs., furnishing and installing steel handrailings; lump sum, furnishing and installing steel gratings and ceiling hatch; and other work. Completion time 300 days. For particulars, address Bureau of Reclamation, Coulee Dam, Washington; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: June 8, 1954

Contract MH-13C

DETROIT RIVER BULKHEAD
ON HARBOR LINE EXTENSION — SECTION II
MEMORIAL HALL COMMISSION
CITY OF DETROIT, MICHIGAN

Sealed proposals for a bulkhead, located in the Detroit River between Shelby Street and Bates Street, addressed to the City Engineer's Office, Department of Public Works, of the City of Detroit, and endorsed: "Proposal For Contract MH-13C" will be received at the Office of the City Engineer, 30th Floor, Guardian Building, Detroit 26, Michigan, until 2:00 P.M., City of Detroit time, on June 8, 1954 at which time they will be publicly opened and read aloud. Any proposal received after the above-mentioned time will be returned to the bidder unopened.

The work included consists of furnishing all labor and materials for the construction of a steel, cellular type bulkhead or seawall, approximately 1000 feet long, on the extended harbor line. The cells are approximately 31 ft. wide by 40 feet long, constructed of 65 foot long interlocking steel sheeting, and are to be filled with crushed stone, slag, gravel, or sand. Special sheeting work at sewer outlets is also included.

The contract documents, including notice to bidders, form of proposal and agreement, drawings and specifications, may be examined at the Office of the City Engineer during business hours, and copies may be obtained by making a deposit of $10.00 per set, which sum will be refunded upon the return in good condition of the complete set of contract documents within ten days after receipt of proposals, or if used in submitting a bona fide proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount of not less than 5 percent of the total bid price, as security for the acceptance of the contract.

All checks shall be made payable to the Treasurer, City of Detroit.

No bid, after being submitted, may be withdrawn for at least 45 days after the actual opening of bids.

The City of Detroit reserves the right to waive any informality in any bid, or to accept any bid, or to reject any or all bids, should it be deemed for its best interests so to do.

City of Detroit
Frank G. Schedmanske, President
Memorial Hall Commission
G. R. Thompson, City Engineer

Bids: June 14, 1954

Construction of Grain Storage & Handling Plants

REQUEST FOR BIDS

The Corporación de Defensa de Productos Agrícolas, an instrumentality of the government of the Republic of Colombia, S. A., will receive sealed competitive bids in duplicate at its principal office in Bogotá, Colombia, until 4 P.M. Eastern Standard Time on the 14th day of June, 1954, for the immediate construction of additional grain storage and handling plants at Pasto and El Banco in the Republic of Colombia, S. A.

Formal bidding documents, Plans and Specifications, and General Conditions of the Construction Contracts may be inspected by qualified prospective bidders at the offices of the Consulting Engineers for the Corporación, Drying Plant Engineers, Inc., 1001 Connecticut Avenue, Washington, D. C. and Carrera 15-43, Piso 11, Bogotá, Colombia, after April 26, 1954.

Persons other than qualified prospective bidders for the construction work in the opinion of the Corporación may obtain copies of the bidding documents upon payment of U. S. $100.00 or if they are Colombian firms, upon payment of Col. $100.00.

The type of construction for the structures will be reinforced concrete, prefabricated steel, or a combination of the two materials; at Pasto and El Banco the work will include furnishing all materials, equipment and services for complete plants ready to operate.

OFFICIAL PROPOSALS

Bids shall be for the total requirements of one or both of the two plants but the Corporación reserves the right to reject any or all bids or to award the work of any divisible part to any one or more bidders.

Interested prospective bidders may address inquiries for further information either to the Corporación or to the Consulting Engineers.

Bids: May 18, 1954

Construction of Drainage

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

WHITE HORSE-MERCERVILLE ROAD
Construction of Drainage on White Horse-Mercerville Road from Maple Shade School to Olden Avenue, Hamilton Township, Mercer County, Federal Aid Secondary Project No. S-170 (5). Length 0.504 miles. The principal items of construction are:

Estimated:
5,018 lin. ft. Rein. Conc. Pipe
33 units—Inlets & Manholes

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, May 18, 1954, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 North Willow Street, Trenton, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

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Strong, well-established company needs a manufacturers representative who calls on concrete block manufacturers and ready-mix concrete dealers. Liberal commission on fast moving necessary items with tremendous repeat potential. Excellent territories still available. For further details write:

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experienced in preparing subdivision plots, municipal maps, and water distribution, sewerage, and paving plans

To arrange for personal interview phone James Anderson Company, Engineers and Surveyors, at Lake Forest 39; or write said Company at 290 East Deerpath, Lake Forest, Illinois.

DESIGN ENGINEER

Age 25–45

Civil Engineer graduate or equivalent with minimum of 3 years experience. Must be eligible for Nebraska professional engineer registration, be proficient in design of concrete hydraulic structures and have understanding of city pavement, sanitary and storm water sewer design. Salary in accordance with qualifications and experience. Position available immediately.

RAY RAMSAY, Personnel Director
CITY OF LINCOLN, NEBRASKA

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for Middle Essex County, N. J.

must be thoroughly familiar with site planning, storm and sewer design. Permanent organization.

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P-2379, Engineering News-Record
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SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

OHIO ENGINEERING firm desires to permanently employ engineers experienced in sanitary, industrial waste and industrial building engineering; also mechanical and electrical engineers. Reply giving full experience record, personal history and salary desired. P-2542, Engineering News-Record.

PLANT SUPERINTENDENT wanted for old established structural precast concrete Plant. Preferably with Engineering background. Please submit complete resume stating experience, salary required and date available to P-2395, Engineering News-Record.

WANTED: CIVIL Engineer with testing experience in soils, asphalt, and concrete to direct laboratory work and investigations. State schooling, experience and salary expected. Midwest. P-2478, Engineering News-Record.

POSITION AVAILABLE—Male opening for assistant managing director for contractors trade association upstate New York. Write — age and full data of experience and references. P-2351, Engineering News-Record.

PACIFIC COAST Engineering Firm requires Civil, Electrical, Mechanical and Architectural Engineers. Permanent. Qualified for registration several states. Furnish education, marital status, salary requirements, availability. Address P-2582, Engineering News-Record.

BRIDGE, STRUCTURAL and Sanitary Engineers. Excellent opportunities for experienced, responsible men. Write P.O. Box 1971, Miami 11, Florida, giving complete qualification.

HIGHWAY CONSTRUCTION Engineer for technical, promotional, educational work in Wisconsin. Permanent. Please give summary of education, experience, salary requirements in reply. P-2586, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

WELL ESTABLISHED construction firm desires representative with a knowledge of the construction industry and preferably a command of the Spanish language and customs to represent them in foreign negotiations for work in the building, heavy construction and Industrial fields. Will headquarter in the Southwest, but must be able to travel extensively. Give full details as to education, experience, salary expected and enclose references and recent photographs. RW-2421, Engineering News-Record.

YOUNG MAN with piping design engineering background for sales work in Chicago area for old established wholesale and manufacturing firm. Salary. Apply Box RW-2631, Engineering News-Record.

SALES ENGINEER—Rochester, New York and Pittsburgh, Pennsylvania territories open with established national concern selling prefabricated metal products to engineering and construction markets. Positions are permanent and offer excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. RW-2289, Engineering News-Record.

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POSITIONS WANTED

DRAFTSMAN WANTED—Experienced for detailing miscellaneous and/or structural steel by Bushnell Steel Company, P. O. Box 2579, Jacksonville, Florida. Reply giving brief resume of experience, education, availability, and salary expected. PW-2386, Engineering News-Record.

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POSITIONS WANTED

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STRUCTURAL ENGINEER desires responsible position in New York metropolitan area. 25 years' experience in steel and reinforced concrete; 18 years in charge of medium-sized engineering organizations. PW-2443, Engineering News-Record.

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ESTIMATOR & CONSTRUCTION Engineer — thoroughly familiar with all phases of take-offs, pricing, sub bids, for commercial and industrial buildings, sewage treatment plants, refineries. PW-2418, Engineering News-Record.

MUDDY BOOTS—Not a white collar, BSCE, 32, 11 years of estimates, design, construction, investigations, surveys, and reports; usually all at the same time. Still have a lot to learn and probably want more money than I am worth, but offer conscientious hard work and loyalty in exchange. Foreign experience was in Far East; domestic experience in the Mid-West. PW-2556, Engineering News-Record.

PROJECT MANAGER or Contractor's executive available. Broad experience heavy construction and buildings. Thorough organizer. Sound knowledge of field supervision, estimating, cost control, purchasing, subcontracts. New York preferred. PW-2557, Engineering News-Record.

PROJECT MANAGER, superintendent, twenty years heavy construction experience, power plants, industrial buildings, bridge and water front work, sewage disposal plants. Foreign or domestic. PW-2492, Engineering News-Record.

CONSTRUCTION ENGINEER, Reg. Electrical & Mechanical Engineer now in Europe completing contract as project engineer. Available June 15 for foreign employment. Wide experience mining, power plants, industrials, air bases. Location immaterial. Employer knows of this ad. PW-2493, Engineering News-Record.

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TOWN ENGINEER position wanted by Civil Engineer, 11 years supervisory and design experience, P.E., M.C.E., age 31, married. PW-2490, Engineering News-Record.

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CIVIL ENGINEER: Registered, 6 yrs. experience in construction, field and office; estimating; design; on heavy industrial, commercial, highway, and railroad. Available in June. Southern location preferred. PW-2646, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, New York Area, Carpenter Foreman for 25 years in all its branches, 4 years Superintendent. Available June 15 or July 1st. PW-2647, Engineering News-Record.

(Continued on the opposite page)

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POSITIONS WANTED
(Continued from the opposite page)

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CIVIL ENGINEER, 41 years old, experienced in construction of buildings, streets, sewers, surveying, and office work, desires permanent position. PW-2636, Engineering News-Record.

CIVIL AND Sanitary Engineer, BSCE, MSSE; 30; married; desires position requiring initiative, drive and responsibility in sales, consulting engineering or industry. 3½ yrs. responsible experience in stream pollution studies and classification procedures. Industrial waste studies, hydrologic calculations and research. 1 yrs experience in engineering sales and city engineering. Present salary $7,200. PW-2635, Engineering News-Record.

C.E. GRAD, 33 reg. Colo. 7 years field supervision of all phases indust. constr., 4 years office design. Desire permanent connection in Constr. management. Resume on request. PW-2634, Engineering News-Record.

PARTY CHIEF, 36, college, const. and property experience. Any section—now in Southeast. PW-2633, Engineering News-Record.

ASSISTANT SUPERINTENDENT & field engineer, B.S.C.E. 5 yrs. const. exper. salary $125 per wk. Box PW-2632, Engineering News-Record.

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BO-2614, Engineering News-Record
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SS-2617, Engineering News-Record
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CIVIL ENGINEER with seven years construction experience desires permanent position in office of General contractor. My experience includes field layout & supervision, estimating, purchasing, expediting material & work of sub-Contractors. Prefer Mid-West location. PW-2576, Engineering News-Record.

PART TIME WORK WANTED

PART TIME Work—Retired licensed structural engineer available for structural design, shop detailing, estimating. PTWW-2637, Engineering News-Record.

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W-2593, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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FS-2575, Engineering News-Record
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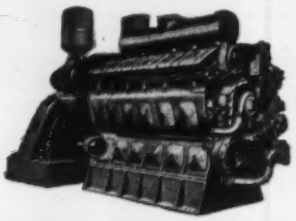

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1136	Fairbanks Morse	38D	1600	720	350	Baldwin	VO-6	510	450
1100	General Motors	16-278A	1600	720	320	Enterprise	DSG-6	560	450
750	General Motors	12-567	1080	720	300	General Motors	8-268A	450	1200
700	Worthington	EE-8	1000	327	200	General Motors	8-268A	350	900
500	General Motors	8-278A	750	720	150	Worthington	CC-4	225	450
500	General Motors	8-567	720	720	150	Ingersoll-Rand	S-4	225	600
500	Alco	6-12 1x13T	750	600	150	Buckeye	80	240	600
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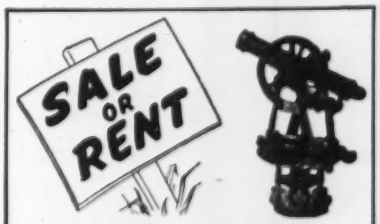

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Link-Belts new 1-yd offers hydraulic control

After more than four years of designing, tooling and testing, the Link-Belt Speeder Corp. is now in production on its new Series 98—a 1-yd shovel-crane designed to bridge the gap between the application and portability advantages of machines up to ¾-yd and the output advantages of the larger, heavier sizes.

With regard to transportability, the crawler-mounted LS-98 when equipped as a shovel weighs approximately 53,000 lb. Therefore, it can be loaded on a flat bed trailer and legally hauled in most states without major disassembly.

With regard to production, the full 1-yd size of the new unit offers obvious advantages, but hydraulic control is also said to add considerably to the machine's productive capacity. The Speed-O-Matic control system, as the company calls it, has been used for about 18 yrs but this is the first time that it has been applied to a unit of this size.

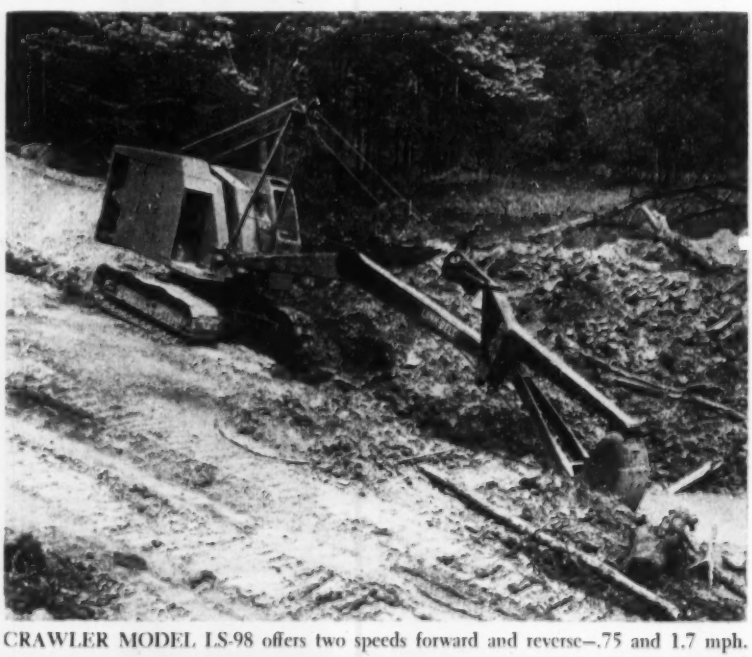
With the hydraulic system, a Vickers hydraulic pump supplies fluid under pressure to an accumulator and the control valves in the cab. Short-throw levers mounted at a height convenient to the operator are used to actuate the valves and thus control fluid flow to clutches and brakes. The valve settings are infinitely variable within the operating range to assure smooth operation and let the operator "feel" the load. According to the manufacturer, the hydraulic system can boost production 25 per cent through the minimizing of operator fatigue.

Other features claimed for the hydraulic system are instantaneous response, much less maintenance than with complex mechanical linkages and automatic compensation for wear and heat expansion of linings.

• **Upper machinery rugged**—The 98 Series employs an all-welded box section structure with 12-in., heavy ship channel main members. Mounting to undercarriage employs four rotating hook rollers in front and two in rear. The front rollers are set in equalized pairs to spread maximum loads.

Machinery side frames are jig-

(Continued on page 120)



CRAWLER MODEL LS-98 offers two speeds forward and reverse—.75 and 1.7 mph.

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Because of their size and weight, concrete blocks require mortar with "body", plasticity and water-retaining capacity. Brixment meets all these requirements. It has the *body* necessary to support the weight of the unit and hold it up to the line. It has the *plasticity* necessary to prevent the mortar from falling off the long head joint, while the block is being placed in the wall. It has high *water-retaining capacity*, which gives the bricklayer more time to shift and adjust the block to its final position before the mortar stiffens.

It is the combination of these characteristics that makes Brixment the leading masonry cement for concrete block as well as for brick.

COMMENT
from the
BUTLER ENGINEER

Recession? No!
Farina? Yes!

Amazing! Hey, that's no word for a conservative engineer to use (sounds more like an adman). But there's no other word that expresses the response at the Ready Mixed Show at Chicago.

Recession? Gentlemen, there ain't gonna be any. Wise, farsighted executives in the Ready Mixed field and those who plan to enter it, have carefully watched the economic trends. They made no move until they were certain. *And then they went into action.*

Never have we been so busy at a Ready Mixed Show. I repeat "amazing".

And firm, solid orders. No "if's".

The same thing happened at the National Concrete Masonry Convention in Washington, D.C. If I'm any judge, both meetings could be listed as "Butler Preferred".

Happy as we are about those orders, we're happier still because of a broader aspect those orders imply: it's a positive and assuring sign that business — particularly in the construction industries is sound, solid and with a very, very bright future.

The reception of our Ready Mixed Show Exhibit was heart warming — and leaves us, not smug, but more than slightly proud. It was a carefully conceived, partially 3-D, highly abstract background design interpreting plant structural parts, materials and product flow. It was far from a literal presentation — and it went over big with the crowd. Many suggested it should be shown in art galleries as an outstanding example of top flight modern design in industrial interpretation. Thank you, kind sirs.

Well, we're back home after those banquets — and back to home-cooking, farina and skim milk, that is.

The Butler Engineer

BUTLER BIN COMPANY
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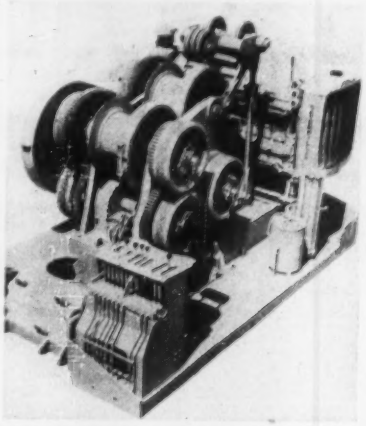
NEW PRODUCTS



EXPOSED upper machinery shows standard drum arrangement. Caterpillar D318 gasoline engine is shown.

Crane dimensions

Overall height, retractable gantry lowered	11′ 3″
Overall height, retractable gantry raised	14′ 2″
Height of boom hinge pin	5′ 5″
Radius of boom hinge pin	3′ 2″
Minimum tailswing (A&B counterweight)	10′ 1″
Maximum tailswing (AB&C counterweight)	10′ 5″
Minimum counterweight clearance	3′ 0″

Hoe working ranges

Bucket Capacity, Cubic Yards	1
Cutting Width, Standard Bucket	44″
Boom Length	20′ 0″
Dipper Arm Length	8′ 2″
Height of Hoe Gantry	16′ 2″
Maximum Digging Radius	33′ 2″
Maximum Digging Depth	21′ 9″
Radius Beginning of Dump	9′ 8″
Ground Clearance Beginning of Dump	12′ 10″
Clearance Radius End of Dump	24′ 8″
Ground Clearance End of Dump	22′ 3″
Overall Height End of Dump	27′ 9″
Overall Height, Standard Gantry	11′ 1″
Minimum Counterweight Clearance	3′ 8″
Minimum Tailswing	10′ 1″
Radius of Boom Hinge Pin	3′ 11″
Height of Boom Hinge Pin	5′ 5″
Cab Clearance Height	10′ 11″

Shovel working ranges

Boom Angle	60°	40°
Dipper Capacity, Cubic Yards	1	1
Boom Length	18′ 0″	18′ 0″
Dipper Stick Length	14′ 4″	14′ 4″
Max. Dumping Height	20′ 6″	14′ 10″
Dump. Radius at Max. Height	18′ 4″	23′ 6″
Max. Dumping Radius	22′ 2″	24′ 6″
Max. Cutting Height	28′ 7″	21′ 9″
Max. Clean-Up Radius	19′ 6″	20′ 4″
Max. Digging Depth	5′ 11″	7′ 10″
Max. Cutting Radius	26′ 9″	29′ 2″
Boom Clearance Height	22′ 2″	18′ 2″

bored after assembly to assure rigidly controlled alignment of inserted drum shafts and each horizontal shaft can be removed for servicing independently of all others. Further, each clutch assembly can be completely removed without dismantling a single section of the cab. All of the clutches are interchangeable and easily accessible.

The boom hoist drum is automatically connected to the power train through a multi-pawl and ratchet so that boom lowering speed is limited to the engine speed. A two-shoe lowering clutch is standard on the rubber-mounted 98's, available for the crawler-mounted model.

Independent swing and travel is also available. With this feature shifting from swing to travel is eliminated, and on many types of jobs can mean considerable saving of time. Swing and travel gears are enclosed and run in oil as do all horizontal deck gears.

• **Three mountings available**—The 98 Series is available on crawlers (LS-98), on a truck carrier (HC-98) or on a self-propelled carrier (MS-98).

The LS-98 standard lower is 12 ft 4 in. in overall length and 10 ft 4 in. wide with 24-in. shoes. 30 and 36-in. shoes are also available. The steel roller path is double-flanged and measures 63 in. across. The side frame has seven 10-in. dia forged track rollers to distribute machine weight evenly over the track length. Two 9-in. dia. carrier rollers on each side support the top run of the track.

A long-wide lower is also available. Measuring 13 ft 1 in. in length and 10 ft 8 in. wide with 24-in. shoes, this carrier can be equipped with 42-in. shoes to give a ground bearing area of 79 sq ft and a bearing pressure of about 4.75 psi. Eight pairs of track rollers are used on this long-wide lower.

Box section, all-welded frame construction is used to give added strength and to provide a high and dry location for track drive machinery. The traction shaft assembly is located completely within the structure. Bevel travel gears operate in a separate compartment, enclosed and running in oil. The flat underside of the LS-98's frame provides a minimum 14-in. clearance.

The LS-98 travel and steer machinery is simple and easy to operate. The clutch and brake for each track are interconnected so that the brake is automatically applied before the multi-jawed clutch is disengaged. Steering is controlled by two short-throw levers at the operator's position.

(Continued on page 122)

Installing a 30" Lock Joint distribution line in a tight spot in the streets of Richmond, Va.

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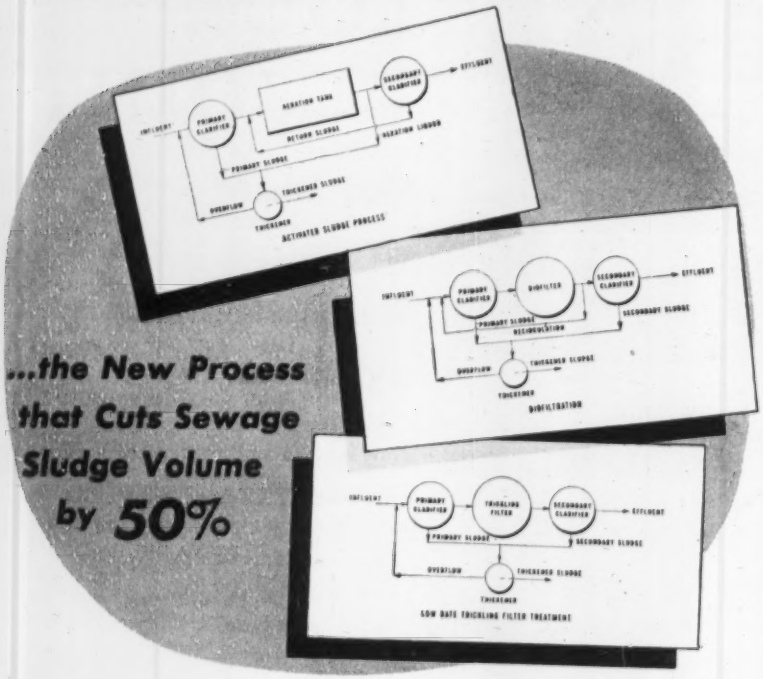
DENSLUDGE...



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More specifically, these greatly reduced sludge volumes mean proportionately smaller digesters in new plants and increased digester capacity in existing plants. They mean lower initial costs for digesters in new construction and plant expansion alike. And Densludge eliminates digester supernatant, reduces digester heat requirements and improves suspended solids removal in the primary clarifier as well.

Bulletin #6260 describes how the process works, gives average operating results on three types of sewage sludge and covers the Dorr Densludge Thickener — the equipment key to the process. We'd like to send you a copy — without obligation, of course.

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NEW PRODUCTS

The HC-98 truck carrier is a three-axled, ten-tired unit that delivers eight forward speeds and two reverse. Rear axles are mounted on full-floating walking-beam supports for operation on uneven terrain. Telescopic rear outriggers can be furnished at extra cost in a removable rear outrigger assembly.

The MS-98 is a one-man operated, self-propelled carrier supported on three axles mounting twelve pneumatic tires. Independent travel clutches in the upper machinery provide four travel speeds both forward and reverse. Final drive assembly employs roller chain drive from jackshaft sprockets to wheel sprockets bolted to brake drum flanges on all four rear wheels. Walking-beam suspension of the drive wheels permits independent vertical movement while maintaining chain alignment and load distribution. Hydraulic steering is controlled from the crane cab.

• **Attachments**—The shovel attachment has an all-welded box section boom and dipper sticks. Large sheaves are designed for minimum cable wear under full load. The dipper trip is hydraulically controlled by a short side motion of the hoist drum control lever.

The hoe boom and arm are constructed of formed steel and are all-welded. All sheaves are cast steel and bronze-bushed. Pitch of the 1-yd bucket is adjustable.

The standard crane boom is of the two piece type and is 40 ft long. Intermediate extensions are available; pin connections are optional at extra cost. Box section jibs are also available.

Dual telescopic tubular boom backstops and standard or high (retractable) gantries are available. The high gantry, recommended for booms over 55 ft long, is raised and lowered under power—removal and replacement of two pins does the job.

When equipped with a 40-ft boom and A and B counterweights, the crane has a lifting capacity (75% of tipping) of 22 tons at a 10-ft radius. The addition of a C counterweight boosts this to 25 tons.

Standard power unit is a Waukesha 140 GK 6-cyl gasoline engine rated at 99 hp at 1,600 rpm. Optionals are either Caterpillar's D318, International's UD525 or General Motors' 4030 C.

The LS-98 crawler-mounted shovel carries a price tag of around $28,000. LINK-BELT SPEEDER CORP., 1201 SIXTH ST., S.W., CEDAR RAPIDS, IOWA.

Improved blasting machine generates its own current

A new, portable, generator-operated blasting machine has been designed to afford safety and reliable performance to users of industrial explosives. It is said to be the first condenser discharge type using a high voltage DC generator directly connected to charge the condensers.

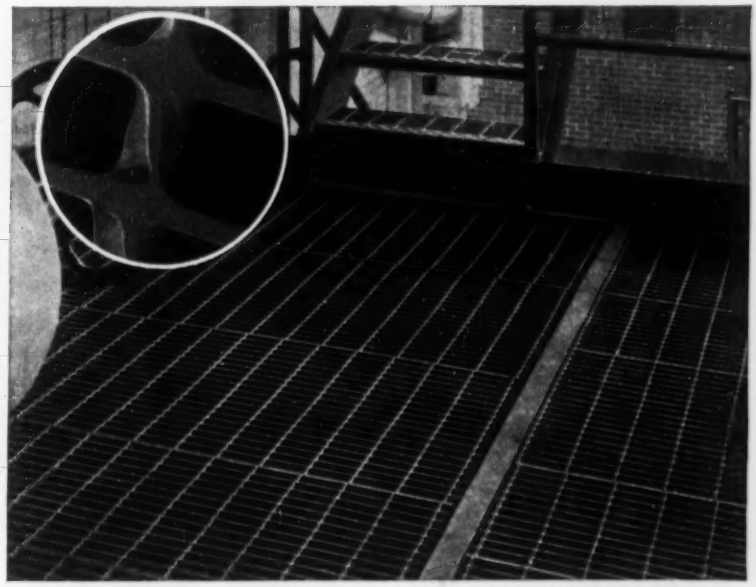
The new machine is completely self-contained. A specially wound, permanent magnet DC generator is hand-cranked through a train of gears to permit moderate cranking speeds.

Although the actuating button can be depressed while the operator is building up the charge in the condensers, the firing circuit cannot be closed—and the explosive fired—until the condensers are delivering a full 450 volts to a relay wired into the firing circuit. A built-in voltmeter registers the charge in the condensers.

The machine is reported adequate to fire up to 50 caps in parallel and up to 1,200 when properly connected in a single shot. Because the charge is developed by a generator, the possibility of residual charge and resultant accidental detonation is eliminated. Further, there are no batteries to replace; performance is not affected by cold weather; and full firing voltage is maintained.

The machine has been field-tested for some time and is said to be weatherproof and will even withstand brief accidental immersion. A waterproof switch is used; binding posts are

(Continued on page 124)



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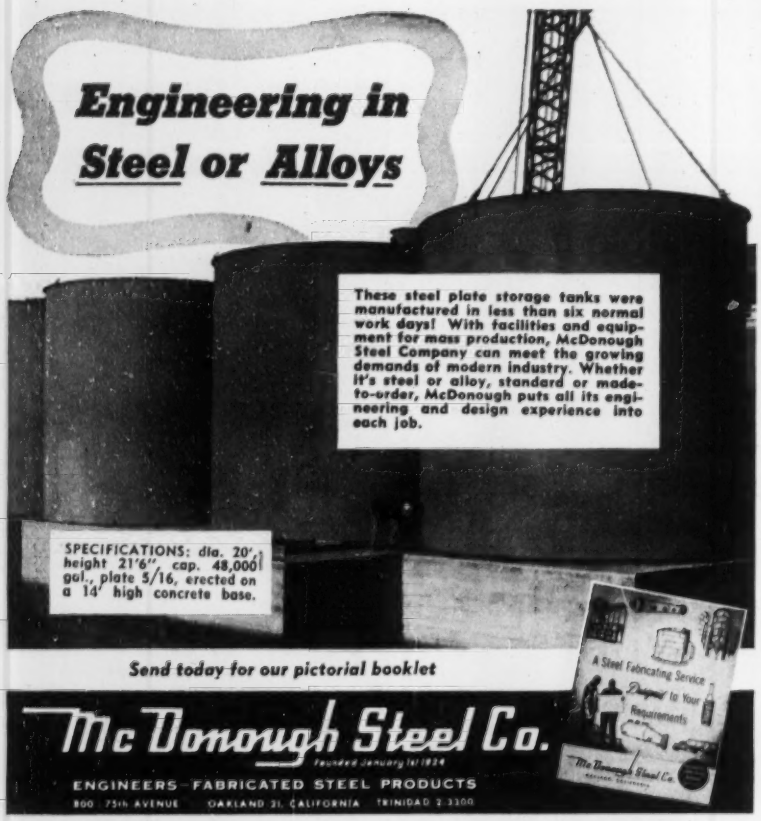
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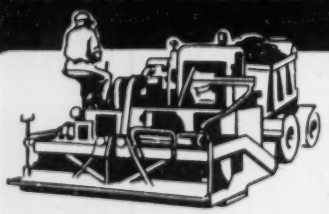

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jacketed with dielectric plastic to prevent accidental contacts; and the insulated terminals are widely separated.

The machine weighs 30 lb and measures 12⅛ in. high, 6¼ in. wide and 9⅝ in. deep. Developed by the Fidelity Instrument Corp. of York, Penna. the machine has been added to the line handled by the ATLAS POWDER CO., WILMINGTON, DEL.

Harnischfeger boosts power output in new diesel line

Contractors in the heavy construction field, and truckers requiring powerful engines to drive their big rigs should be interested in the new line of diesel engines developed by the Harnischfeger Corp.

Horsepower ranges from 58 to 255, in two-, three-, four- and six-cylinder sizes and operating speed has been increased to 1800 rpm. All models have a 16 to 1 compression ratio, bore and stroke are 4.5x5.5 in., and displacement is 87 cu in. per cylinder.

The new models are of the same basic design as former models, yet they incorporate 52 major advancements and refinements to give 36% greater power output.

Most important change, according to the manufacturer, is the improved cylinder assembly, which has been completely redesigned for improved efficiency and longer service. Important improvements also include better scavenging, new porting, redesigned combustion chamber, new alloy hardened cast liners and greater cooling efficiency. Also, the new series of engines have corrosion-resistant water jackets, improved timing, a new injection principle and better lubrication and oil control than former models.

The added horsepower, coupled with lightweight aluminum alloy crankcase and block design, gives these new P&H diesel engines more horsepower per pound than any commercial American manufactured diesel, the manufacturer claims. The six-cylinder model weighs 7.06 lb per hp; the four-cylinder, 8.33 lb; the three-cylinder, 9.30 lb; and the two-cylinder, 12.50 lb per hp.

Another feature of the improved engines—designated Series C-18 P&H 2-cycle diesel—is that they are reported to be highly serviceable. The complete cylinder head and liner assembly can be replaced in 30 min, and a complete change of the power assembly can be made overnight on any of the four sizes of engines. HARNISCHFEGER CORP., DIESEL ENGINE DIVISION, CRYSTAL LAKE, ILL.

FILMS

The story behind the LS-98

A 16-min sound-color film produced by the Link-Belt Speeder Corp., 1201 Sixth St., S.W., Cedar Rapids, Iowa, and available from that office or Link-Belt distributors. As the title indicates, the film deals with the development and testing of the new LS-98—a 1-yd shovel-crane.

Link-Belt has chosen a novel and—in this case effective—medium for the introduction of its new 1-yd shovel-crane. Along with the usual ads and announcements, the company has prepared a 16-mm film which traces the history of development through the original planning stages, production tooling and field testing.

The one-reeler takes the viewer inside the Cedar Rapids Works to show the vast amount of tooling and jigging done to reduce production costs. It also travels to the various job sites where the prototype models were tested and then describes how these units were torn down and thoroughly checked for wear or misalignment.

Aluminum on the skyline

A 28-min sound-color film produced by the Aluminum Company of America and available by writing Alcoa Motion Picture Department, 722 Alcoa Bldg., Pittsburgh 19, Pa. A documentary picture showing the design and construction of Alcoa's headquarters office building.

Following a prologue that describes events leading up to the erection of Alcoa's aluminum sheathed building, the motion picture points up salient construction features, dating from early excavation work to completion of the building's special lightweight steel frame, 410 ft above street level.

It describes the design and fabrication of the building's 6x12-ft aluminum curtain wall panels, the vertically pivoted reversible aluminum windows, the radiant-heating aluminum ceiling, aluminum plumbing and wiring and the aluminum hardware and trim used from basement to penthouse.

In the final 10 min the film takes the viewer on a "cook's tour" of the completed building. Included in the tour are the penthouse board room and its adjacent management lounge, executive offices, corridors, reception foyers, elevators, 71-seat theater, a one-piece aluminum staircase, the tastefully designed main lobby, and the engineering facilities in the two basements.

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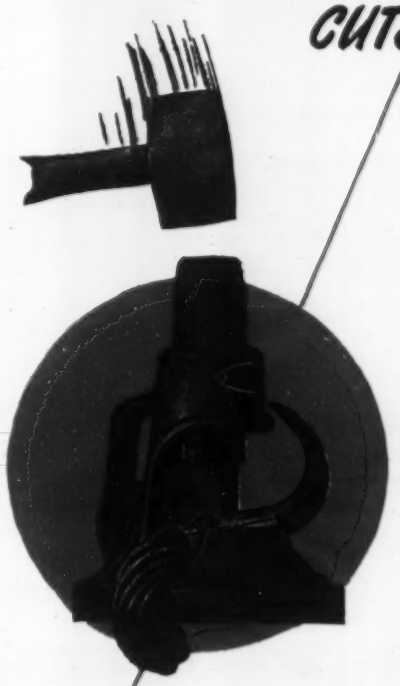

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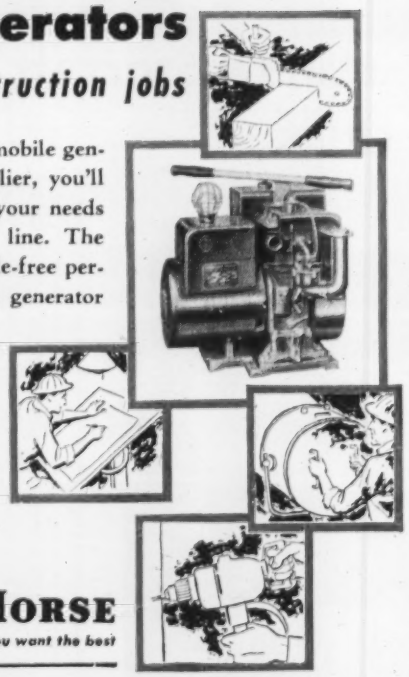

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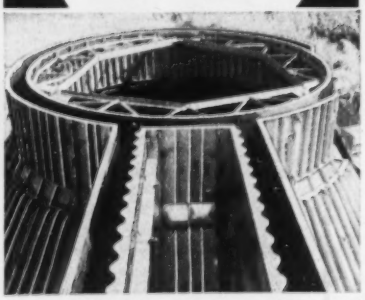

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PUBLICATIONS

Gas heaters—A 12-page technical bulletin describes a line of gas-fired unit heaters. The line includes propeller fan and blower type heaters, each produced in fourteen models, ranging in capacity from 55,000 to 500,000 Btu per hr and burning all types of gas at the rated capacities. The two-color booklet, designated No. 23-3, includes capacity tables and roughing-in dimensions as well as structural and operational descriptions of the entire line. UNITED STATES AIR CONDITIONING CORP., 33RD & COMO AVE., S. E., MINNEAPOLIS 14, MINN.

Perimeter insulation—A new 8-page booklet describes methods of insulating perimeters of basementless homes whether of concrete slab or crawl space construction. It also contains specific recommendations for architects and builders on the three types of perimeter insulations produced by the OWENS-CORNING FIBERGLAS CORP., TOLEDO 1, OHIO.

Better lighting—"Better Daylighting for Schools" is the title of a new booklet containing actual photographs of outstanding installation of translucent, light diffusing glass in modern school buildings. The booklet details characteristics of the manufacturer's various patterns, particularly suited for installation in vertical sidewall sash in south, east and west exposures and in skylights and clerestories. Light transmission tables for recommended patterns are also included. MISSISSIPPI GLASS CO., 38 ANGELICA ST., ST. LOUIS 7, MO.

Spread footings—A new 12-page brochure describes Franki displacement caissons and jobs done in this country since the company was formed two years ago. The novel methods, results, tests, requirements for design and firm, fixed-price quotation policy are all covered in this booklet. FRANKI FOUNDATION CO., 114 E. 40TH ST., NEW YORK 16, N. Y.

Swimming pools—Swimming pool supplies, chemicals and equipment are described in a new 28-page booklet. Profusely illustrated with bathing beauties and other more prosaic photographs, the catalog can serve as a handy reference source in answering inquiries on swimming pool costs. The book gives illustrations and prices of a complete range of swimming pool fittings and detailed information on filters, filter accessories, pool ladders, underwater lights, observation win-

dows and chlorinators. It describes automatic skimmers, diving boards and stands, underwater vacuum cleaners and special swimming pool paints. MODERN SWIMMING POOL CO., INC., DEPT. D-19, 1 HOLLAND AVE., WHITE PLAINS, N. Y.

Chemicals for sewage—A 16-page technical bulletin, No. 10-K12, contains pertinent data and information of interest to designing engineers and supervisors of operations of water, sewage or waste treatment plants where chemicals are used in treatment processes. The data in this technical bulletin represents current information on 50 chemicals used in water purification and sewage and waste treatment. It contains information on the various chemicals, their formulas, common names, most common uses, forms in which they may be obtained, sizes of chipping containers and characteristics including appearance and properties, bulk density, commercial strength and solubilities. OMEGA MACHINE CO., 345 HARRIS AVE., PROVIDENCE, R. I.

Glass blocks—A new 24-page catalog "P. C. Glass Blocks for Industrial, Commercial and Public Buildings" is designed to be a reference manual for architects, engineers and contractor personnel. Information on physical performance; technical data on light transmission, insulation values, installation detail drawings, accessory materials and complete specifications are covered in the new catalog. PITTSBURGH CORNING CORP., 1 GATEWAY CENTER, PITTSBURGH 22, PA.

Insulation—Producers of 85% magnesia and diatomaceous silica insulations have adopted new simplified thicknesses for pipe insulation to aid in specification writing and to permit the use of all sizes and thicknesses in double layer construction. A complete conversion table covering all insulation thicknesses to all pipe sizes may be obtained from the MAGNESIA INSULATION MFRS. ASSN., 1317 F ST., N. W., WASHINGTON 4, D. C.

Shovels and cranes—A 24-page, two-color bulletin covers the crawler-mounted power shovels and cranes in the 1-yd Lorain 50 Series. Design and construction illustrations highlight the booklet. It explains the leading features of the line and also contains operating views of the equipment. THE THEW SHOVEL CO., LORAIN, OHIO.

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EDITORIALS

Marking pavement edges

TEST INSTALLATIONS of a white line along the outer edge of highway pavements have been made by some of the state highway departments. The idea appears to have originated with John V. N. Dorr, chairman of the board of The Dorr Company, who suggested it to the Connecticut Highway Department, and so was responsible for one of the early test installations. Mr. Dorr's idea was simply that such a white line would be a help to motorists in maintaining a safe position in the right-hand lane of a highway. But J. Walter Hotze, also of Connecticut, and a student of airfield lighting, says that such a line has an added advantage in giving the eye something else than the approaching headlights to focus on and thus reduces temporary blindness.

As a possible extension of Mr. Dorr's proposal, we repeat a recommendation made last year in connection with the problem of fog on superhighways (ENR Nov. 12, 1953, p.120), namely, to use colored glass beads in reflectorized lane markings. Thus, white beads could be used to mark the pavement edges and red or yellow beads for the center line.

In these days of mounting accident occurrence—both on old highways where opposing lanes are not separated, and on new multiple-lane divided highways where high density and speed prevail—distinctive lane markings appear to offer new opportunities for increased safety.

Higher society dues

ENGINEERING SOCIETIES, like all other businesses, have felt the effects of inflation. With their incomes largely dependent on dues, fixed in amount by a constitutional provision, they have labored under a diminishing purchasing power of the funds at their disposal. And the burden has been increased by the demands of members for new and enlarged services in keeping with the growth of technology and the many new problems that the engineer of today must face. And while the managements of most of these societies have done all that they could to stretch their funds to the limit and to seek new sources of revenue, members at large have not faced up to their responsibilities in approving an increase in dues commensurate with the cost of the services that they demand.

The American Society of Civil Engineers is one of the societies that is now asking its members to help it to help them, through an increase in dues. The additional amount asked, $5—which would bring full member dues to $25 and junior member dues to $15—is modest, and, if anything, too modest in view of the situation that has developed since the last raise in dues 33 years ago. Since that time the purchasing power of the dollar has dropped to between one third and one fourth of its former value. Moreover, in 1921 the average dues income per member was $18.92. By 1940 it was down to $16.40, and last year it was only $14.00, a result of a great increase in junior members who now constitute 47% of the society's membership.

Here, indeed, is one of the truly great new services that the ASCE has provided—encouraging young engineers to gain from the society all of the advantages available to the older members, and at bargain rates. The parts that these young engineers have played in the society and in their civil engineering and construction jobs as a result of their improved position are great assets to the profession. And there is a growing awareness on their part that they have benefited to an extent that justifies their paying more for the privilege. Fortunately too, the economic status of young engineers is better today than ever, so that paying their own way is not the hardship it once was.

The modern engineering society, with its responsibilities to its members encompassing social and economic as well as technological services, is a vitally necessary contributor to engineering progress. Like everything else, it must grow or lose its force for service. And its members, who will benefit from this growth, should face the fact that they must pay for it. For financial health is fundamental to growth, however many other things contribute to it.

No mourners at the wake

THE HISS AND CRUNCH of a piledriver, although frequently classed as music by construction men, win few plaudits from the general public. Hardly surprising therefore was the reception accorded by San Franciscans to the largest hammer ever built (see page 36) as it pounded and jarred for four months in the very center of the city's business district. In a popularity contest it would have rated only slightly above the famous earthquake and fire of 1906.

Came the finish of the job, and the natural inclination of those in charge to sneak the unpopular culprit out of town under cover of darkness. But zanier counsel prevailed. "Let's celebrate the departure," it was said. "Better still, let's do it with a funeral."

No carefully planned carnival could have created more excitement than the resulting impromptu wake—complete with orations, wreaths, stopped-traffic and 10,000 happy mourners chanting the name of Alfred the Monster, as the deceased had been christened. Crazy? Yes. Improbable? No, not in America where a sense of humor is a national trait. Useless? By no means, for Alfred is now remembered for the fun he provided at his funeral, and not for the trouble he caused in his life. As a public relations job for construction, Alfred's funeral was tops.

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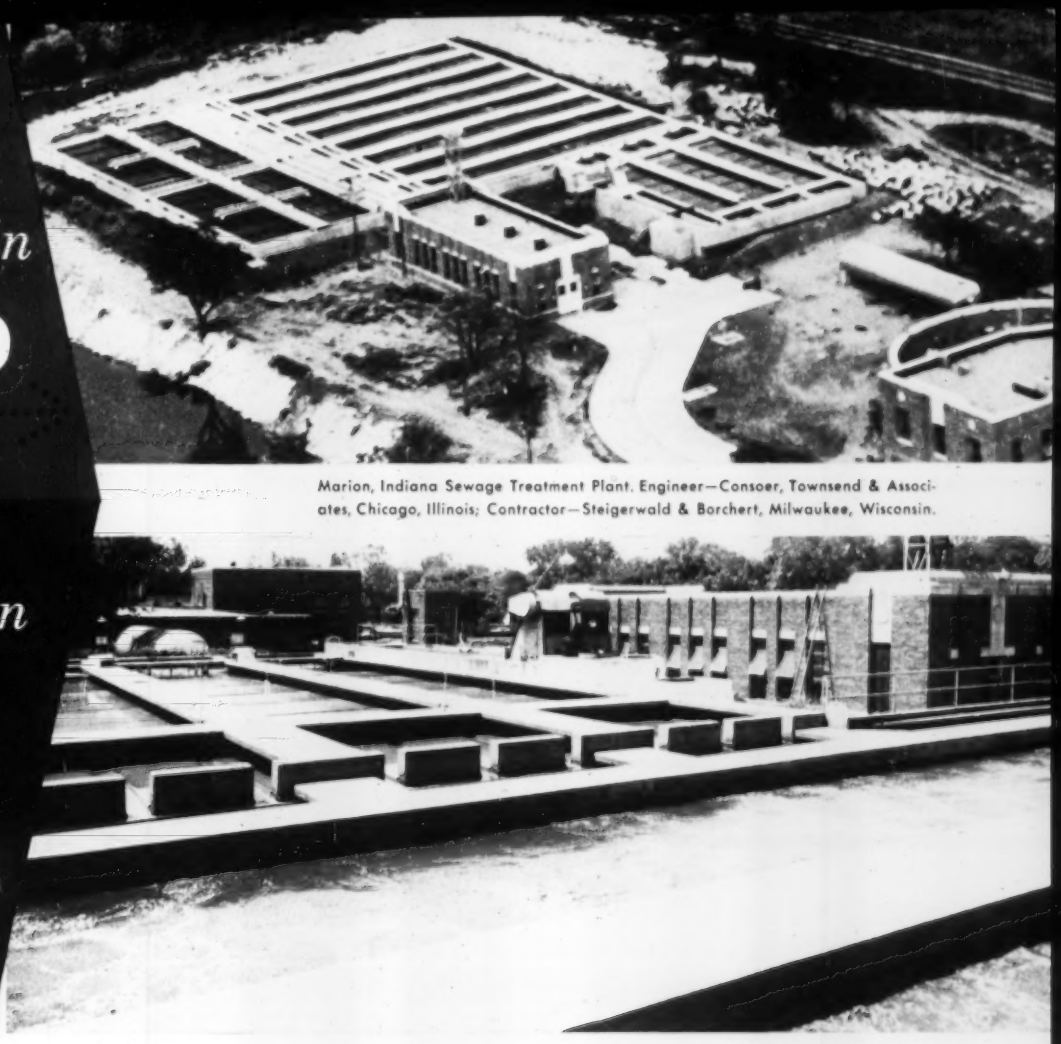
resulted in sound concrete **1954**



Marion, Indiana Sewage Treatment Plant. Engineer—Consoer, Townsend & Associates, Chicago, Illinois; Contractor—Steigerwald & Borchert, Milwaukee, Wisconsin.

*design with lowest unit water content ...for maximum quality

For a given set of materials, air content and water-cement ratio, the *unit water content* (amount of water per cubic yard of concrete) is one of the most important basic factors affecting the quality of concrete. Leading authorities agree on this†.

Among the tools employed by engineers in line with this fact is Pozzolith—a proved means of lowering unit water content to insure minimum shrinkage, longer life.

How water content is reduced by Pozzolith for a given placeability is demonstrated quickly at your job—or even at your desk—while you watch. Or if you stipulate a low water content, the effectiveness of Pozzolith in aiding placeability—otherwise unobtainable—is immediate.

May we demonstrate these facts to you?

†See Bureau of Reclamation Concrete Manual, 5th Edition, Page 130.

POZZOLITH ...

the cement-dispersing, water-reducing agent, developed by The Master Builders Co. in 1932, which makes available the optimum amount of air in concrete and fully complies with the water-cement ratio law. Added at the mixer.

the MASTER BUILDERS Co

Subsidiary of American-Marietta Company

Laying the hot-mix Texaco Asphaltic Concrete wearing surface, final step in this New York State highway project. Prime contractor — Tuckahoe Construction Co., Tuckahoe, N. Y.; Asphalt contractor — County Asphalt, Inc., Tarrytown, N. Y.

New York made this an all-flexible highway

Applying an 85/100 penetration Texaco asphalt to the top 4 inches of the 12-inch broken stone base.

A section of the new 22-foot pavement, which will have a 10-foot shoulder on each side when completed.

West of Liberty, N. Y., State Route 52 serves one of New York State's most popular resort areas. Last year, when the Department of Public Works built a new 7-mile link in this highway, it employed flexible construction from top to bottom.

For the sub-base, run-of-bank gravel was laid in two lifts to a compacted thickness of 12 inches. This was covered by three 4-inch courses of broken stone, the top course penetrated by an application of two gallons of 85/100 penetration Texaco asphalt per square yard. A two-course hot-mix Texaco Asphaltic Concrete pavement, with a combined thickness of 3 inches, completed the highway.

The all-flexible type of construction used on New York's Route 52 merits serious consideration for all toll roads, important highways and other heavily traveled thoroughfares. It is capable of absorbing punishing impact for years with a minimum of maintenance. Its first cost and upkeep cost are lower than for comparable pavements. Its easy-riding, skid-resistant qualities, as well as its freedom from glare and absence of joints all contribute to maximum driving comfort and safety.

Helpful information on all types of Texaco asphalt construction for streets and highways is supplied in two booklets, which our nearest office will be glad to send you.

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